

3.2 Flat File Usage

A flat file is an operating system file that is written and subsequently read, generally independent of other files that exist, and usually static in nature. There are cases when the implementation of persistent data is better suited to a flat file than to a database (e.g., system configuration data, external interface data). SDSRV Subsystem file usage is detailed in this section via file, block, field, and domain definitions.

3.2.1 Files Descriptions

A summary listing of the files in the SDSRV Subsystem is given in Table 3-127 together with a brief description of the file usage. Many different record formats are used in ECS including ODL., HDF, HDF EOS, block, fixed length, variable length, etc.

Table 3-128. Flat File Descriptions (1 of 3)

| File Name | File Type | Record Format | File Description |
|--|----------------|-----------------|---|
| EcDsScienceDataServer.ALOG. CCYYMMDDHHMMSS (where CC=century, YY=year, MM=month, DD=day, HH=hour,MM=minutes, SS=seconds. All 2 digit integers). | Unix flat file | variable length | Main Science Data Server output log file. Contains informational, warning, and error messages. Each message has a date and time stamp. Always produced |
| EcDsScienceDataServerDebug.log.CC YYMMDDHHMMSS | Unix flat file | variable length | Optional debug log file. Setup in Science Data Server configuration file. Contains messages showing server activity at key points in processing. Includes executed SQL, DCE information , streamed metadata. |
| EcDsScienceDataServer.ACFG | Unix flat file | variable length | Science Data Server Application Configuration Metrics file. Describes installation configuration information. |
| EcDsScienceDataServer.CFG | Unix flat file | variable length | Science Data Server runtime configuration file. Contains configurable information needed at system start-up for both COTS and custom software. |

Table 3-128. Flat File Descriptions (2 of 3)

| File Name | File Type | Record Format | File Description |
|---|----------------|-----------------|---|
| EcDsScienceDataServer.PCFG | Unix flat file | variable length | Science Data Server Program Configuration file. Contains Program configuration metrics and process performance metrics configuration data. |
| EcDsScienceDataServerClient.CFG | Unix flat file | variable length | Science Data Server Client configuration file. |
| EcDsHdfEosServer_<N>.ALOG. CCYYMMDDHHMMSS (where CC=century, YY=year, MM=month, DD=day, HH=hour,MM=minutes, SS=seconds. All 2 digit integers). | Unix flat file | variable length | Main HDF EOS Server output log file. Contains informational, warning, and error messages. Each message has a date and time stamp. There may be multiple HDF EOS Servers configured and each one has its own log file. Always produced |
| EcDsHdfEosServer_<N>Debug.log.CC YYMMDDHHMMSS | Unix flat file | variable length | Optional debug log file. Setup in Hdf Eos Server configuration file. Contains messages showing server activity at key points in processing. There may be multiple HDF EOS Servers configured and each one has its own log file. |
| EcDsHdfEosServer_<N>.CFG | Unix flat file | Variable length | Hdf Eos Server runtime configuration file. Contains configurable information needed at system start-up for both COTS and custom software. There may be multiple HDF EOS Servers configured and each one has its own configuration file. |
| EcDsHdfEosServer_<N>.PCFG | Unix flat file | Variable length | Hdf Eos Server Program Configuration file. Contains Program configuration metrics and process performance metrics configuration data. There may be multiple HDF EOS Servers configured and each one has its own program configuration file. |
| DsESDTCollectionTemplate.desc | Unix flat file | Variable length | Used to validate ESDTs upon installation. Descriptor Template. |

Table 3-128. Flat File Descriptions (3 of 3)

| File Name | File Type | Record Format | File Description |
|---|--|----------------------------|--|
| DsESDT<sub-dir name><Shortname>.<VersionID>.desc (sub-dir is name of subdirectory used to store Descriptors) | Unix flat file | Variable length | Uniquely named ESDT file descriptors. Describe collection level metadata for SDSRV installation. |
| libDsESDT<sub-dir name><ShortName>.<VersionID>Sh.so | ELF 32-bit MSB dynamic lib SPARC Version 1, dynamically linked | Dynamic Link Library (DLL) | Provides generic to ESDT specific processing capability to SDSRV. These Dynamic Linked Libraries (DLLs) are dynamically linked into the Data Server on an as needed basis. |

3.2.2 Block Specifications

Brief definitions of each of the flat file block descriptions are contained herein.

Table 3-129. Flat File Block Descriptions (1 of 3)

| File Name | Block Name | Block Description |
|--|----------------------------|--|
| EcDsScienceDataServer .ALOG.CCYMMDDHH MMSS | N/A | N/A |
| EcDsScienceDataServer Debug.log.CCYMMDD HHMMSS | N/A | N/A |
| EcDsScienceDataServer .ACFG | APPLICATION PROGRAM | Denotes Application level parameters. Denotes Program level parameters. |

Table 3-129. Flat File Block Descriptions (2 of 2)

| File Name | Block Name | Block Description |
|---|---|---|
| EcDsScienceDataServer .CFG | General Attributes | SDSRV general description data. |
| | DCE Related Attributes | Describes SDSRV's relationship to DCE. |
| | Security Attributes | Contains SDSRV's ACL profile |
| | Security Database Attributes | Contains ACL Database information |
| | Server Request Framework and Message Passing Attributes | Server Request Framework (SRF) and Message Passing information. |
| | DDIST Server Info | Data Distribution Server information |
| | HDF Server Info | HDF EOS Server information |
| | DSSSrEnv | Environment variables used by the SDSRV. Sourced at start-up |
| EcDsScienceDataServer .PCFG | CSS_MP | Server specific parameters for the MSS Deputy Agent. |
| | APPLICATION | SNMP parameters. |
| | PROGRAM | MSS configuration metrics. |
| | PROCESS | MSS performance metrics. |
| EcDsScienceDataServer Client.CFG | N/A | N/A |
| EcDsHdfEosServer_<N> .ALOG. CCYYMMDDHHMMSS (where CC=century, YY=year, MM=month, DD=day, HH=hour,MM=minutes, SS=seconds. All 2 digit integers). | N/A | N/A |
| EcDsHdfEosServer_<N> Debug.log.CCYYMMDD HHMMSS | N/A | N/A |

Table 3-129. Flat File Block Descriptions (3 of 3)

| File Name | Block Name | Block Description |
|---|---|--|
| EcDsHdfEosServer_<N>.CFG | General Attributes | HDFEOS Server general description data. |
| | Dce Related Attributes | Describes HDF EOS Server's relationship to DCE. |
| | Security Attributes | Contains HDF EOS Server's ACL profile. |
| | Security Database Attributes | Contains ACL Database information. |
| | Server Request Framework and Message Passing Attributes | Server Request Framework (SRF) and Message Passing information. |
| | DSSHrEnv | Environment variables used by the HDF EOS Server. Sourced at start-up. |
| EcDsHdfEosServer_<N>.PCFG | CSS_MP | Server specific parameters for the MSS Deputy Agent. |
| | APPLICATION | SNMP parameters |
| | PROGRAM | MSS configuration metrics. |
| | PROCESS | MSS performance metrics. |
| DsESDTCollectionTemplate.desc | N/A | N/A |
| DsESDT<sub-dir name><Shortname>.<VersionID>.desc (sub-dir is name of subdirectory used to store Descriptors) | N/A | N/A |
| libDsESDT<sub-dir name><ShortName>.<VersionID>Sh.so | N/A | N/A |

3.2.3 Field Specifications

Brief specifications of the fields present within the SDSRV Subsystem flat files are contained in Table 3-130.

Table 3-130. Flat File Field Specifications

| File Name/Block Name | Field Name | Data Type | Field Description |
|---|-------------------|---------------|--|
| EcDsScienceDataServer.ALOG.CCYYMMDDHHMMSS | | | |
| EcDsScienceDataServerDebug.log.CCYYMMDDHHMMSS | | | |
| EcDsScienceDataServer.ACFG/APPLICATION | MsAg_ID | Quoted string | Application ID. Value - 4000000 |
| | MsAg_Name | Quoted string | Application Name. Value - EcDsScienceDataServer |
| | MsAg_MajorVersion | Quoted string | Application Major Version. Value - 1 |
| | MsAg_MinorVersion | Quoted string | Application Minor Version. Value - 0 |
| | MsAg_Revision | Quoted string | Application Revision Number. Value - 0 |
| | MsAg_MaintLevel | Quoted string | Application Maintenance Level. Value - 0 |
| | MsAg_Type | Quoted string | Application Type. Value - custom |
| | MsAg_Contact | Quoted string | Application primary contact. Value - DSS lead |
| | MsAg_Language | Quoted string | Application language. Value - English |
| | MsAg_ExecPath | Quoted string | Path to script that starts application. Value - /usr/ecs/<MODE>/CUSTOM/utilities |
| | MsAg_ExecFile | Quoted string | Script to start application. Value - EcDsScienceDataServerAppStart <MODE> |
| | MsAg_LogMaxSize | Quoted string | Maximum application log file size in bytes. Value - 1000000 |

| File Name/Block Name | Field Name | Data Type | Field Description |
|--|--------------------|---------------|---|
| | MsAg_LogLevel | Quoted string | Application Log Level. Value - 0 |
| | MsAg_SubSystem | Quoted string | Application Subsystem name. Value - DSS |
| | MsAg_MssEventLevel | Quoted string | Mss Event Level. Value - 2 |
| | MsAg_InstallTime | Quoted string | Mode install time. Value - <Date> |
| | MsAg_LogPath | Quoted string | Path to log file. Value - /usr/ecs//<MODE>/CUSTOM/logs |
| | MsAg_LogFile | Quoted string | Log File name. Value - EcDsScienceDataServer.ALOG |
| | MsAg_NumOfProgs | Quoted string | Number of Programs in Application. Value - 2 |
| | | Quoted string | |
| EcDsScienceDataServer.ACFG/PROGRAM | Community | String | Scope of Application. Value - public |
| | PeerName | Quoted string | Peer Name. Value - cyclops.hitc.com |
| EcDsScienceDataServer.CFG/General Attributes | Name | String | Name of the SDSRV executable. Value - EcDsScienceDataServer |
| | ProgramID | Integer | ECS program identifier of the EcDsScienceDataServer. Value - 4000000 |
| | ApplicationID | Integer | ECS application Identifier for the SDSRV application. Value - 4000000 |
| | Site | String | Name of the DAAC site. Value - GSFC. |
| | SubSysName | String | ECS subsystem name. Value - DSS |

| File Name/Block Name | Field Name | Data Type | Field Description |
|--|-------------------|-----------|---|
| | MajorVersion | Integer | (Data Server Subsystem). Major version number of the software release. Value – 1 |
| | MinorVersion | Integer | Minor version number of the software release. Value – 0 |
| | AppLogSize | Integer | Application log size in number of bytes. Value - 1000000 |
| | AppLogLevel | Integer | Application logging level. Value is 0, 1, or 2. |
| | DebugLevel | Integer | Debug logging level. Value is 0, 1, 2, or 3. |
| | Release | string | ECS release identifier. Value – B |
| EcDsScienceDataServer.CFG/DCE Related Attributes | ServerShortName | String | SDSRV DCE name. Value - EcDsScienceDataServer. |
| | GroupName_1 | String | DCE groupname 1. Value - EcDsScienceDataServerG1. |
| | GroupName_2 | String | DCE groupname 2. Value - EcDsScienceDataServerG2. |
| | GroupName_3 | String | DCE groupname 3. Value - EcDsScienceDataServerG3. |
| | GroupName_4 | String | DCE groupname 4. Value – EcDsScienceDataServerG4. |
| | ProfileName | String | Profile Name. Value - EcDsScienceDataServer |
| | HostPolicy | String | Host Policy. Value - multiple. |
| | ServerDescription | String | Server description. Value - This is the EcDsScienceDataServer (Mode: <MODE>). |
| | NumOfInterfaces | Integer | Number of interfaces. Value - 4. |

| File Name/Block Name | Field Name | Data Type | Field Description |
|---|----------------------------------|-----------|--|
| | oid1_EcDsScienceDataServer<MODE> | String | Value - <uuid> |
| | oid2_EcDsScienceDataServer<MODE> | String | Value - <uuid> |
| | oid3_EcDsScienceDataServer<MODE> | String | Value - <uuid> |
| | oid4_EcDsScienceDataServer<MODE> | String | Value - <uuid> |
| | oid_EcAgManagaer_<MODE> | String | Value - <uuid> |
| | ListenThreads | String | Value - <uuid> |
| | Protocol | Integer | Number of listen threads. Value - 50. |
| | | string | Communications Protocol. Values - TCP/IP, UDP, TCP/IP UDP, Null. |
| EcDsScienceDataServer.CFG/Security Attributes | KeyFile | String | Unix path and filename for the EcDsScienceDataServer.Keyfile. Value - CUSTOM/security/EcDsScienceDataServer.Keyfile |
| | PrincipalName | String | Server Principal Name. Value - EcDsScienceDataServer. |
| | acIDBName | String | Sybase database name of the appropriate ACL database. Value - b_MsgPsnngDB_acl. Currently, this parameter is not being used. |
| | AppStrtNum | integer | Application Start Number. Value - 12345. |

| File Name/Block Name | Field Name | Data Type | Field Description |
|---|-----------------|-----------|---|
| EcDsScienceDataServer.CFG/Security Database Attributes | DBAcKey | String | Currently, this parameter is not being used. Value - PfaclKey. |
| | DBLibrary | String | Symbolic name of the database client library for RogueWave DBTools. Currently, this parameter is not being used. Value - Sybase_CT. |
| | DBServer | String | Sybase SQL server name for the ACL database. Currently, this parameter is not being used. Value - OTIS_SERVER. |
| | DBLoginName | String | Sybase login name for ACL processing. Currently, this parameter is not being used. Value - acluser. |
| | DBPassword | String | Sybase login password for ACL processing. Currently, this parameter is not being used. |
| | DBName | String | Sybase database name of the ACL database. Currently, this parameter is not being used. Value - EcsAcStorage. |
| | UpdateAcTime | integer | How often (in seconds) updates to the ACL information are processed. Value - 3600. |
| EcDsScienceDataServer.CFG/Server Request Framework And Message Passing Attributes | SRFflag | String | Turns Server Request Framework(SRF) on or off. Value - no. |
| | messpassflag | String | Turns Message Passing on or off. Value - no. |
| | RecUuid | String | UUID needed for SRF. |
| | RecLogFileName | String | Name of file used to persist received message passing data. Value - b_Rec. |
| | SendLogFileName | String | Name of file used to persist sending message passing data. If not set |

| File Name/Block Name | Field Name | Data Type | Field Description |
|--|----------------|---------------|---|
| | NbrofFTPThr | Integer | there will be no persistence for message passing. Value - b_Send. Number of FTP threads used by the application. Value - Between 1 and 30. |
| | FTPFileName | string | Determines persistence with FTP. Value - ftpfilename. |
| EcDsScienceDataServer.CFG/DDIST Server Information | DDISTGroupName | string | Data Distribution Server info. Value - EcDsDistributionServer. |
| EcDsScienceDataServer.CFG/DSSSr Env | DSSSrEnv1 | | This is a group environment variable containing the following environment variables: DSSCONFIG, DSSDLLDIR, DSSSDSRV, DSSSBSRV, DSSEVSRV, DSSDESCDIR, DSSDLLINPUTDIR, DSSDESCINPUTDIR, SDSRV_TEMP_DIR. |
| | DSSCONFIG | Quoted string | Not Used |
| | DSSDLLDIR | String | Directory where Science Data Server installs the DLLs. Value - /usr/ecs/<MODE>/CUSTOM/lib/DSS |
| | DSSSDSRV | String | Server UR for Science Data Server. This parameter is configurable. Default Value – [MDC:DSSSDSRV] |
| | DSSSBSRV | String | Server UR for Subscription Server. Value – UR:12:EcUrServerUr[:CSSBSRV] |
| | DSSEVSRV | String | Server UR for Event Server. Value – UR:12:EcUrServerUr[:CSEVSRV] |
| | DSSEVSRV | String | Directory where Science Data Server installs the descriptors. Value - /usr/ecs/<MODE>/CUSTOM/cfg/DsESDTD Desc |

| File Name/Block Name | Field Name | Data Type | Field Description |
|------------------------------------|-------------------------|---------------|--|
| | DSSDESCDIR | String | Directory where Science Data Server will get the DLLs for installation. This directory is configurable. Default Value - /usr/ecs/<MODE>/CUSTOM/lib/ESS |
| | DSSDLLINPUTDIR | String | Directory where Science Data Server will get the descriptors for installation. This directory is configurable. Default Value - /usr/ecs/<MODE>/CUSTOM/data/ESS |
| | DSSDESCINPUTDIR | String | Directory where Science Data Server will create temporary files. Value - /usr/ecs/<MODE>/CUSTOM/temp/DSS |
| | SDSRV_TEMP_DIR | string | |
| EcDsScienceDataServer.CFG/DSSSrEnv | DSSSrEnv2 | | This is a group environment variable containing the following environment variables: DSSSDSRV, DSSATTRFILE, DSSCONTFILE, DSSSTMGSTAGEINGSERVERUR, SDSRV_LOCAL_STAGING_DISK, DSSHOULDADVERTISE, DSSNOSTAGINGDISK, DSSNOARCHIVE, URDDICT, SDSRV_MODEDDICT. |
| | DSSATTRFILE | Quoted string | Not used |
| | DSSCONTFILE | Quoted string | Not used |
| | DSSSTMGSTAGEINGSERVERUR | String | Server Key for the Staging Disk Server. This parameter is configurable. Default Value – SGI-<MODE> |
| | | | Server Key for the Local Staging Disk Server. This Staging Disk |

| File Name/Block Name | Field Name | Data Type | Field Description |
|------------------------------------|-----------------------------|-----------|--|
| | SDSRV_LOCAL_STAGING_DISK | String | Server is used for subsetting. This parameter is configurable. Default Value – SGI_<MODE> |
| | DSSHOULDADVERTISE | Integer | Turns the interface to the Advertising Server, Data Dictionary, and Subscription Server on and off to allow for the independent testing of ESDT Installation. It should be set to 0 to turn off. Value – 1 |
| | DSSNOSTAGINGDISK | String | Turns the interface to the Staging Disk Server on and off. If this is set to a value, the interface to the Staging Disk will be turned off. |
| | DSSNOARCHIVE | String | Turns the interface to the Archive Server on and off. If this is set to a value, the interface to the Archive Server will be turned off. |
| | URDDICT | String | Server UR of the Data Dictionary Server. Value – UR:12:EcUrServerUr[:DMDDICT] |
| | SDSRV_MODEDICT | string | Mode of the Data Dictionary Server. Value - <MODE> |
| EcDsScienceDataServer.CFG/DSSSrEnv | DSSSrEnv3 | | This is a group environment variable containing the following environment variables: DSSMEMORYMONITORLOWSETPOINT, DSSMEMORYMONITORVERYLOWSETPOINT, DSSMEMORYMONITORDEADBAND, DSSMEMORYMONITORRESEVRMEMSIZE, DSSMEMORYMONITORDISABLEDFLAG. |
| | DSSMEMORYMONITORLOWSETPOINT | Integer | Percent of reserved memory used by SDSRV when low priority requests should be rejected. This |

| File Name/Block Name | Field Name | Data Type | Field Description |
|------------------------------------|-------------------------------------|-----------|---|
| | DSSMEMORYMONITOR VERYLOWSETPOINT | Integer | parameter is configurable. Default value – 75% Percent of reserved memory used by SDSRV when all requests should be rejected. This parameter is configurable. Default value – 85% |
| | DSSMEMORYMONITOR DEADBAND | Integer | Percent of memory use that must change before the memory monitoring state changes. If SDSRV is using 75% of the memory that is reserved for SDSRV, then low priority requests will be rejected. The memory usage must fall to 70% if this parameter is set to 5 before low priority requests will be accepted. This parameter is configurable. Default Value – 5% |
| | DSSMEMORYMONITOR RESEVRMEMSIZE | Integer | Size of the memory block in bytes that is reserved for the SDSRV process on startup. This parameter is configurable. Default – 500000000 |
| | DSSMEMORYMONITOR DISABLEDFLAG | Integer | Flag to enable and disable memory monitoring. If the parameter is set to 0, memory management is enabled. If the parameter is set to 1, memory management is disabled. This parameter is configurable. Default – 0. |
| EcDsScienceDataServer.CFG/DSSSrEnv | DSSSrEnv4 | | This is a group environment variable containing the following environment variables: RpcClientID, SDSRV_STAGINGDISK_TRY_COUNT, SDSRV_ARCHIVE_TRY_COUNT, SDSRV_DDIST_TRY_COUNT, SDSRV_SUBSCRIPT_SRVR_TRY_COUNT, SDSRV_RETRY_SLEEP_TIME, SDSRV_DB_TRY_COUNT. Science Data Server RPC ID. |

| File Name/Block Name | Field Name | Data Type | Field Description |
|------------------------------------|-------------------------------|-----------|---|
| | RpcClientID | String | Value – SDSV |
| | SDSRV_STAGINGDISK_TRY_COUNT | Integer | Number of times to retry connecting to the Staging Disk Server if a retryable error is encountered. 0 means to retry forever. Value - 0 |
| | SDSRV_ARCHIVE_TRY_COUNT | Integer | Number of times to retry connecting to the Archive Server if a retryable error is encountered. 0 means to retry forever. Value - 0 |
| | SDSRV_DDIST_TRY_COUNT | Integer | Number of times to retry connecting to the Data Distribution Server if a retryable error is encountered. 0 means to retry forever. Value – 0 |
| | SDSRV_SUBSCRIPT_SVR_TRY_COUNT | Integer | Number of times to retry connecting to the Subscription Server. 0 means to retry forever. Value – 0 |
| | SDSRV_RETRY_SLEEP_TIME | Integer | Number of seconds to sleep in between retrying to connect to a server. Value – 60 |
| | SDSRV_DB_TRY_COUNT | integer | Number of times to try to reconnect to the database. This feature is meant to recover from lost connections and deadlocks. Value - 3 |
| EcDsScienceDataServer.CFG/DSSSrEnv | DSSSrEnv5 | | This is a group environment variable containing the following environment variables: DSS_NUM_GEN_CATALOGS, SDSRV_CATALOG_CONNECT_INSTRUCTIONS, SDSRV_DB_TRY_COUNT. |
| | DSS_NUM_GEN_CATALOGS | integer | Controls how many DsMdCatalog objects get created within SDSRV on startup. This value has direct impact on the number of SYBASE connections held by SDSRV. This |

| File Name/Block Name | Field Name | Data Type | Field Description |
|------------------------------------|---------------------------|-----------|---|
| | SDSRV_CATALOG_CONNECTIONS | | <p>parameter is configurable. Default Value – 15</p> <p>Controls how the DsMDCatalog connects to the database. This parameter has direct impact on the total number of connections made. The value “SybaseAndSQS” causes each DsMdCatalog to create two database connections, one to SQS and one directly to the SYBASE SQL Server. This option doubles the number of connections specified in the DSS_NUM_GEN_CATALOGS, but it offers significant performance gains by using direct SYBASE SQL Server connections when possible. The value “SQSOnly” causes each DsMdCatalog object to create only one database connection. This connection is to the SQS Server. This option requires less total connections, but lacks the performance improvements gained by using the direct SQL Server connections. This parameter is configurable. Default Value - SQSOnly</p> |
| EcDsScienceDataServer.CFG/DSSSrEnv | DSSSrEnv6 | | <p>This is a group environment variable containing the following environment variables: SDSRV_NUM_INT_SESSION, SDSRV_PAUSE_INT_SESSION, SDSRV_STARTUP_SLEEP_TIME.</p> <p>Number of concurrent sessions reserved to work off stored Persistent Asynchronous Acquire Requests. Value – 10</p> <p>Number of seconds to wait before checking if there are any available sessions for Asynchronous Acquire Requests. Value – 45</p> <p>Number of seconds to wait before starting to process Asynchronous Acquire Request when the SDSRV</p> |

| File Name/Block Name | Field Name | Data Type | Field Description |
|------------------------------------|---------------------------|-----------|---|
| | SDSRV_STARTUP_SLEEP_TIME | integer | is warm started. Value - 30 |
| EcDsScienceDataServer.CFG/DSSSrEnv | DSSSrEnv7 | | This is a group environment variable containing the following environment variables: SDSRV_AUTO_INSPECT_SWITCH , SDSRV_AUTO_INSPECT_LIST |
| | SDSRV_AUTO_INSPECT_SWITCH | Integer | Controls whether SDSRV returns commonly inspected metadata attributes as part of the search request. The intent of this feature is to eliminate the RPC associated with the INSPECT service. Turns the SDSRV Auto Inspect feature on and off. 1 means on. This parameter is configurable. Value – 1 |
| | SDSRV_AUTO_INSPECT_LIST | string | List of attributes that will automatically be returned to the client on a search if Auto Inspect is activated. Value – BeginningDateTime EndingDateTime productionHistoryId browseld CollectionDescriptionClass ECSDDataGranule SpatialDomainContainer AdditionalAttributes |
| EcDsScienceDataServer.CFG/DSSSrEnv | DSSSrEnv_DB | | This is a group environment variable containing the following environment variables: DBUSERNAME, DBPASSWD, DBNAME, DBMAXRESULTS, SYBINTERFACES, SDSRV_SYBASE_SERVER, SDSRV_DB_MAX_JOINS |
| | DBUSERNAME | String | Sybase login of the SDSRV user. |
| | DBPASSWD | String | Sybase password of the SDSRV Sybase login. |
| | | | Sybase database name of the SDSRV metadata database for this |

| File Name/Block Name | Field Name | Data Type | Field Description |
|-------------------------------------|----------------------|---------------|---|
| | DBNAME | String | server. |
| | DBMAXRESULTS | String | Maximum number of results returned to client from DsDbInterface class. Value – 1500 |
| | SYBINTERFACES | String | Unix file path location of the Sybase INTERFACES file. Value - tools/sybOCv11.1.0/interfaces |
| | SDSRV_SYBASE_SERVER | String | Name of the Sybase SQL Server instance used by the SDSRV instance. |
| | SDSRV_DB_MAX_JOINS | Integer | Maximum number of tables that can be joined on a query |
| EcDsScienceDataServer.CFG/DSSSr Env | DSSSrUNIXEnv | | This is a group environment variable containing the following environment variables: SYBASE, DSQUERY. |
| | SYBASE | String | Unix file path of the Home directory of the Sybase SQL Server software. Value - /tools/sybOCv11.1.0 |
| | DSQUERY | string | |
| EcDsScienceDataServer.PCFG/PROGRAM | MsAg_ID | Quoted string | Program ID. Value – 4000000 |
| | MsAg_AppID | Quoted string | Application ID. Value - 4000000 |
| | MsAg_ApplicationName | Quoted string | Application Name. Value – EcDsScienceDataServer |
| | MsAg_Name | Quoted string | Program Name. Value – EcDsScienceDataServer |
| | MsAg_MajorVersion | Quoted string | Program Major Version. Value – 1 |
| | MsAg_MinorVersion | Quoted | Program Minor Version. Value – 1 |

| File Name/Block Name | Field Name | Data Type | Field Description |
|----------------------|-------------------------|---------------|--|
| | MsAg_Revision | string | Program Revision Number. Value – 0 |
| | MsAg_MaintLevel | Quoted string | Program Maintenance Level. Value – 0 |
| | MsAg_Type | Quoted string | Program Type. Value - custom |
| | MsAg_Contact | Quoted string | Program Primary Contact. Value – DSS Task Lead |
| | MsAg_Language | Quoted string | Program Language. Value – English |
| | MsAg_ExecPath | Quoted string | Path to program executable. Value - /usr/ecs/<MODE>/CUSTOM/utilities |
| | MsAg_ExecFile | Quoted string | Script to start program. Value – EcDsScienceDataServerStart <MODE> |
| | MsAg_UpdateInterval_sec | Quoted string | Value – 99 |
| | MsAg_AppShutdown_sec | Quoted string | Value – 20 |
| | MsAg_ProgShutdown_sec | Integer | Value – 15 |
| | MsAg_ProcShutdown_sec | Integer | Value – 10 |
| | MsAg_InstallTime | Integer | Program Install Time. Value - <Date> |
| | MsAg_TimeOut | Quoted string | Value - 0 |
| | | Quoted string | |

| File Name/Block Name | Field Name | Data Type | Field Description |
|------------------------------------|--------------------------------|---|--|
| EcDsScienceDataServer.PCFG/Process | MsAg CPU Utilization % | Series of bracket delimited quoted strings. | . Value - 500, 300, 100, 400, 200, 150 |
| | MsAg Memory Utilization % | | . Value - 500, 300, 100, 400, 200, 150 |
| | MsAg In RPC counter | | . Value - 500, 300, 100, 400, 200, 150 |
| | MsAg Out RPC counter | | . Value - 500, 300, 100, 400, 200, 150 |
| | MsAg In RPC Packets counter | | . Value - 500, 300, 100, 400, 200, 150 |
| | MsAg Out RPC Packets counter | | . Value - 500, 300, 100, 400, 200, 150 |
| | MsAg Number Of Threads integer | | . Value - 500, 300, 100, 400, 200, 150 |
| | MsAg Disk IO % | | . Value - 500, 300, 100, 400, 200, 150 |
| EcDsScienceDataServerClient.CFG | EcDsScienceDataServer G1 | String | Science Data Server DCE groupname 1. Value - G1 |
| | EcDsScienceDataServer G2 | String | Science Data Server DCE groupname 2. Value - G2 |
| | EcDsScienceDataServer G3 | String | ScienceDataServer DCE groupname 3. Value - G3 |
| | EcDsScienceDataServer G4 | String | Science Data Server DCE groupname 4. Value - G4 |
| | Site | String | DAAC name. Value – GSFC |
| | SubSysName | String | ECS Sub System Name. Value – DSS |
| | Name | String | Name of the SDSRV Client application – EcDsScienceDataServerClient |

| File Name/Block Name | Field Name | Data Type | Field Description |
|--|---------------|-----------|--|
| | ApplicationID | Integer | ECS application identifier of the EcDsScienceDataServerClient. Value – 1234567 |
| | ProgramID | Integer | ECS program Identifier for the SDSRV Client application. Value – 1234567 |
| | AppLogSize | Integer | SDSRV Client log size. Value - 1000000 |
| | DebugLevel | Integer | SDSRV Client logging level. Value is 0, 1, 2, or 3. |
| | AppLogLevel | Integer | Application Logging level. Value is 0, 1, or 2. |
| | MajorVersion | Integer | Major Version. Value - 1 |
| | MinorVersion | Integer | Minor Version. Value – 0 |
| | AppStrtNum | integer | Application Start Number. Value - 12345 |
| EcDsHdfEosServer_<N>.ALOG.CCYYMMDDHHMMSS | | | |
| EcDsHdfEosServer_<N>Debug.log.CCYYMMDDHHMMSS | | | |
| EcDsHdfEosServer_<N>.CFG/General Attributes | Name | String | Name of the Hdf Eos Server Program. Value – EcDsHdfEosServer_<N> |
| | ProgramID | Integer | ECS program identifier of the EcDsHdfEosServer. Value – 4000000 + <N> |
| | ApplicationID | Integer | ECS application Identifier for the SDSRV application. Value - 4000000 |
| | Site | String | Name of the DAAC site. Value - GSFC. |

| File Name/Block Name | Field Name | Data Type | Field Description |
|---|-------------------|-----------|--|
| | SubSysName | String | ECS subsystem name. Value - DSS (Data Server Subsystem). |
| | MajorVersion | Integer | Major version number of the software release. Value – 1 |
| | MinorVersion | Integer | Minor version number of the software release. Value – 0 |
| | AppLogSize | Integer | Application log size in number of bytes. Value - 1000000 |
| | AppLogLevel | Integer | Application logging level. Value is 0, 1, or 2. |
| | DebugLevel | Integer | Debug logging level. Value is 0, 1, 2, or 3. |
| | Release | string | ECS release identifier. Value – B |
| EcDsHdfEosServer_<N>.CFG/DCE Related Attributes | ServerShortName | String | HDF EOS Server DCE name. Value – EcDsHdfEosServer_<N> |
| | GroupName1 | String | DCE groupname 1. Value - EcDsHdfEosServer_<N>_G1 |
| | GroupName2 | String | DCE groupname 2. Value - EcDsHdfEosServer_<N>_G2 |
| | GroupName3 | String | DCE groupname 3. Value - EcDsHdfEosServer_<N>_G5 |
| | HostPolicy | String | Host Policy. Value - multiple. |
| | ServerDescription | String | Server description. Value - This is the EcDsHdfEosServer_<N> |
| | ServerObjSerial | integer | Value - 1 |
| | NumOfInterfaces | Integer | Number of interfaces. Value - 4. |

| File Name/Block Name | Field Name | Data Type | Field Description |
|--|--------------------------------------|-----------|---|
| | oid_EcDsHdfEosServer_<N>_Obj1_<MODE> | String | Value - <uuid> |
| | oid_EcDsHdfEosServer_<N>_Obj2_<MODE> | String | Value - <uuid> |
| | oid_EcDsHdfEosServer_<N>_Obj3_<MODE> | String | Value - <uuid> |
| | oid_EcAgManagaer_<MODE> | String | Value - <uuid> |
| | ListenThreads | String | Value - <uuid> |
| | Protocol | Integer | Number of listen threads. Value - 1 |
| | | string | Communications Protocol. Values - TCP/IP, UDP, TCP/IP UDP, Null. |
| EcDsHdfEosServer_<N>.CFG/Security Attributes | KeyFile | String | Unix path and filename for the EcDsHdfEosServer_<N>.Keyfile. . Value - CUSTOM/security/EcDsHdfEosServer_<N>.Keyfile |
| | PrincipalName | String | Server Principal Name. Value - EcDsHdfEosServer_<N> |
| | acldbName | String | Sybase database name of the appropriate ACL database. Value - b_MsgPsngDB_acl. |
| | AppStrtNum | integer | Application Start Number. Value - 12345. |
| EcDsHdfEosServer_<N>.CFG/Security Attributes | DBAclKey | String | Value - PfAclKey. |
| | DBLibrary | String | Symbolic name of the database client library for RogueWave DBTools.This parameter is currently not used. Value - Sybase_CT. |
| | DBServer | String | Sybase SQL server name for the ACL database. This parameter is |

| File Name/Block Name | Field Name | Data Type | Field Description |
|--|---------------------|-----------|--|
| | DBLoginName | String | currently not used. Value - OTIS_SERVER. Sybase login name for ACL processing. This parameter is currently not used. Value - acluser. |
| | DBPassword | String | Sybase login password for ACL processing. This parameter is currently not used. |
| | DBName | String | Sybase database name of the ACL database. This parameter is currently not used. Value - EcsAclStorage. |
| | UpdateAclTime | integer | How often (in seconds) updates to the ACL information are processed. Value - 3600. |
| EcDsHdfEosServer_<N>.CFG/Server Request Framework and Message Passing Attributes | SRFflag | String | Turns Server Request Framework(SRF) on or off. Value - no. |
| | messpassflag | String | Turns Message Passing on or off. Value - no. |
| | RecUuid | String | UUID needed for SRF. |
| | RecLogFileFileName | String | Name of file used to persist received message passing data. Value - b_Rec. |
| | SendLogFileFileName | String | Name of file used to persist sending message passing data. If not set there will be no persistence for message passing. Value - b_Send. |
| | NbrofFTPThr | Integer | Number of FTP threads used by the application. Value - Between 1 and 30. |
| | FTPFileName | string | Determines persistence with FTP. Value - ftpfilename. |

| File Name/Block Name | Field Name | Data Type | Field Description |
|-------------------------------|--------------------------------|-----------|---|
| EcDsHdfEosServer_<N>/DSSHrEnv | DSSHrEnv | | This is a group environment variable containing the following environment variables: RpcClientID, HDFEOS_RESTART_ABSOLUTE_MEMORY, HDFEOS_RESTART_RELATIVE_MEMORY, HDFEOS_RESTART_LOCAL_DIR. |
| | RpcClientID | String | HDF EOS Server RPC Client ID. Each instance of the server will have a unique value. |
| | HDFEOS_RESTART_ABSOLUTE_MEMORY | Integer | Sets the maximum memory that a HDF EOS Server can consume for all requests during the lifetime of the server. This parameter is configurable. Default Value - 150000000 |
| | HDFEOS_RESTART_RELATIVE_MEMORY | Integer | Sets the maximum memory that a HDF EOS Server can consume for a single request. This parameter is configurable. Default value – 20000000 |
| | HDFEOS_RESTART_LOCAL_DIR | string | Directory path to the HDF EOS Server executable. This parameter is configurable. Default Value - \${ECS_HOME}/<MODE>/CUSTOM/bin/DSS |
| EcDsHdfEosServer_<N>/DSSHrEnv | DSSStagEnv | | This is a group environment variable containing the following environment variables: OUTPUTFILESIZERATIO, MCFFFILESIZERATIO |
| | OUTPUTFILESIZERATIO | Float | Value – 1.0 |
| | MCFFFILESIZERATIO | float | Value – 0.2 |
| EcDsHdfEosServer_<N>/DSSHrEnv | DsCsEnv | | This is a group environment variable containing the following environment variables: |

| File Name/Block Name | Field Name | Data Type | Field Description |
|----------------------|---------------|-----------|--|
| | SYBASE | | SYBASE, SYBINTERFACES. This parameter is configurable. Default Value - /tools/syb0Cv11.1.0 |
| | SYBINTERFACES | | This parameter is configurable. Default Value - /tools/sybOCv11.1.0/interfaces |

3.2.4 Domain Definitions

Domain definitions specify the data type and valid content of fields within a file (e.g., specific values for a limited set of data, ranges of numeric data, units of measure for applicable data). This information is generally used by software to edit incoming data for validity prior to writing or changing data within the file. Use of domain values in updating (adding and changing) records within files preserves the integrity of the data within the file. The domain definitions for the SDSRV Subsystem are presented in Table 3-131.

Table 3-131. Flat File Domain Definitions

| File Name/Block Name | Field Name | Domain Description |
|----------------------|------------|--------------------|
|----------------------|------------|--------------------|

4. Performance and Tuning Factors

4.1 Indexes

An index provides a means of locating a row in a database table based on the value of a specific column(s), without having to scan all data in the table. When properly implemented, indexes can significantly decrease the time it takes to retrieve data, thereby increasing performance. Sybase allows the definition of two types of indexes, clustered and non-clustered.

In a clustered index, the rows in a database table are physically stored in sequence-determined by the index. Clustered indexes are particularly useful, when the data is frequently retrieved in sequential order. Only one clustered index may be defined per table.

Non-clustered indexes differ from their clustered counterpart, in that, data is not physically stored in sorted order—newly added rows are stored at the end of the related database table.

A key of the types of indexes found in SDSRV is provided in Table 4-1 Index Type Key. A list a description of each of the defined indexes is given in Table 4-2 Index List

Table 4-1. Index Type Key

| Index Type Key | Description |
|----------------|---|
| PK | Primary Key |
| FK | Foreign Key |
| U | Unique - Only one for the column code combination |
| C | Clustered or non-clustered index |
| Sort | ASC (ascending) or DESC (descending) order |

Table 4-2. Index List (1 of 5)

| Table Name | Index Name | P | F | U | C |
|-------------------------------|--------------------------------|-----|-----|-----|-----|
| DsDeDictionaryAttribute | PK_DSDBDICTIONARYATTRIBUTE | Yes | No | Yes | Yes |
| | xDsDeDictionaryAttribute | No | No | Yes | No |
| DsDeDictionaryContent | PK_DSDBDICTIONARYCONTENT | Yes | No | Yes | Yes |
| | xDsDeDictionaryContent | No | No | Yes | No |
| DsDeDictionaryRule | PK_DSDBDICTIONARYRULE | Yes | No | Yes | Yes |
| DsDeECSKeywordValid | PK_DSDEECSKEYWORDVALIDS | Yes | No | Yes | Yes |
| DsGeESDTConfiguredType | PK_DSGEESDTCONFIGUREDTYPE | Yes | No | Yes | Yes |
| DsMdAdditionalAttributes | PK_DSMDADDITIONALATTRIBUTES | Yes | No | Yes | Yes |
| | xDsMdAdditionalAttributes | No | No | Yes | No |
| | xDsMdAdditionalAttributesID | Yes | No | Yes | No |
| DsMdAlgorithmPackage | PK_DSMDALGORITHMPACKAGE | Yes | No | Yes | Yes |
| | xDsMdAlgorithmPackageDate | No | No | No | No |
| | xDsMdAlgorithmPackageNameVers | No | No | No | No |
| DsMdAltitudeResolution | PK_DSMDALTITUDERESOLUTION | Yes | No | Yes | Yes |
| DsMdAnalysisSource | PK_DSMDANALYSISOURCE | Yes | No | Yes | Yes |
| | xDsMdAnalysisSource | No | No | Yes | No |
| DsMdAncillaryInput | xDsMdAncillaryGranuleId | No | No | No | Yes |
| | xDsMdAncillaryInputPointer | No | No | No | No |
| DsMdAncillaryInputGranule | PK_DSMDANCILLARYINPUTGRANULE | Yes | No | Yes | Yes |
| | xDsMdAncillaryInputGranuleDate | No | No | No | No |
| DsMdApContactXref | PK_DSMDAPCONTACTXREF | Yes | No | Yes | Yes |
| DsMdAPSAPComponentXref | PK_DSMDAPSAPCOMPONENTXREF | Yes | No | Yes | Yes |
| | xDsMdAPSAPComponentXrefSsapId | No | Yes | No | No |
| DsMdAttributeConversion | pk_dsmdattributeconversion | Yes | No | Yes | Yes |
| DsMdAttributeList | PK_DSMDATTRIBUTELIST | Yes | No | Yes | Yes |
| DsMdAttributeTableXref | PK_DSMDATTRIBUTETABLEXREF | Yes | No | Yes | Yes |
| DsMdBaseDependent | pk_dsmdbasedependent | Yes | No | Yes | Yes |
| DsMdBrowse | PK_DSMDBROWSE | Yes | No | Yes | Yes |
| | xDsMdBrowseBrowsePointer | No | No | No | No |
| | xDsMdBrowseDate | No | No | No | No |
| DsMdBrowseGranuleXref | PK_DSMDBROWSEGRANULEXREF | Yes | No | Yes | Yes |
| | xDsMdBrowseGranuleXref | No | No | No | No |
| DsMdCampaign | PK_DSMDCAMPAIGN | Yes | No | Yes | Yes |
| | xDsMdCampaign | No | No | Yes | No |
| DsMdCIBoundingRectangle | PK_DSMDCLBOUNDINGRECTANGLE | Yes | Yes | Yes | Yes |
| DsMdCICircle | PK_DSMDCLCIRCLE | Yes | Yes | Yes | Yes |
| DsMdCIGPolyGPolygonContainer | DsMdCIGPolyGPolygonCont_ind1 | No | No | Yes | Yes |
| DsMdCIGPolygon | PK_DSMDCLGPOLYGON | Yes | Yes | Yes | Yes |
| DsMdCIPoint | PK_DSMDCLPOINT | Yes | Yes | Yes | Yes |
| DsMdCollBrowseXref | PK_DSMDCOLLBROWSEXREF | Yes | No | Yes | Yes |
| DsMdCollDisciplineKeywordXref | PK_DSMDCOLLDISCIPLINEKEYWORDXR | Yes | No | Yes | Yes |

Table 4-2. Index List (2 of 5)

| Table Name | Index Name | P | F | U | C |
|--------------------------------|--|-----------------|----------------|-----------------|-----------------|
| DsMdCollectionAddnlAttribsXref | PK_DSMDCOLLECTIONADDNLATTRIBSX xDsMdCollectionAddnlAttribsXrf | Yes No | No No | Yes No | Yes No |
| DsMdCollectionAnalysisXref | PK_DSMDCOLLECTIONANALYSISXREF | Yes | No | Yes | Yes |
| DsMdCollectionAPXref | PK_DSMDCOLLECTIONAPXREF idx1_dsmcollectionapxref | Yes No | No Yes | Yes No | Yes No |
| DsMdCollectionAssociation | PK_DSMDCOLLECTIONASSOCIATION xDsMdCollectionAssociation xDsMdCollectionAssociationType | Yes No No | No No No | Yes No No | Yes No No |
| DsMdCollectionCampaignXref | PK_DSMDCOLLECTIONCAMPAIGNXREF | Yes | No | Yes | Yes |
| DsMdCollectionContactXref | PK_DSMDCOLLECTIONCONTACTXREF | Yes | No | Yes | Yes |
| DsMdCollectionGranuleXref | PK_DSMDCOLLECTIONGRANULEXREF xDsMdCollectionGranuleXref | Yes No | No Yes | Yes No | Yes No |
| DsMdCollectionInstrumentXref | PK_DSMDCOLLECTIONINSTRUMENTXRE | Yes | No | Yes | Yes |
| DsMdCollectionPlatformXref | PK_DSMDCOLLECTIONPLATFORMXREF | Yes | No | Yes | Yes |
| DsMdCollections | PK_DSMDCOLLECTIONS xDsMdCollectionsType | Yes No | No No | Yes No | Yes No |
| DsMdCollectionSensorXref | PK_DSMDCOLLECTIONSENSORXREF | Yes | No | Yes | Yes |
| DsMdCollFloatInfoContent | PK_DSMDCOLLFLOATINFOCONTENT xDsMdCollFloatInfoContAttrId | Yes No | No No | Yes No | Yes No |
| DsMdCollIntegerInfoContent | PK_DSMDCOLLINTEGERINFOCONTENT xDsMdCollIntInfoContentAttrId | Yes No | No No | Yes No | Yes No |
| DsMdCollReview | PK_DSMDCOLLREVIEW | Yes | No | Yes | Yes |
| DsMdCollStorageMedium | PK_DSMDCOLLSTORAGEMEDIUM xDsMdCollStorageMedium | Yes No | No No | Yes No | Yes No |
| DsMdCollStringInfoContent | PK_DSMDCOLLSTRINGINFOCONTENT xDsMdCollStringInfoContAttrId | Yes No | No Yes | Yes No | Yes No |
| DsMdCollVerticalSpatialDomain | PK_DSMDCOLLVERTICALSPATIALDOMA | Yes | No | Yes | Yes |
| DsMdCollZoneIdentifier | PK_DSMDCOLLZONEIDENTIFIER | Yes | No | Yes | Yes |
| DsMdCommandConversion | pk_dsmcommandconversion | Yes | No | Yes | Yes |
| DsMdContact | PK_DSMDCONTACT xDsMdContactRole | Yes No | No No | Yes No | Yes No |
| DsMdContactAddress | PK_DSMDCONTACTADDRESS | Yes | No | Yes | Yes |
| DsMdContactOrganizations | PK_DSMDCONTACTORGANIZATIONS xDsMdContactOrgName | Yes No | Yes No | Yes No | Yes No |
| DsMdContactPersons | PK_DSMDCONTACTPERSONS xDsMdContactPersonsLastName | Yes No | Yes No | Yes No | Yes No |
| DsMdCSDTDescription | PK_DSMDCSDTDESCRIPTION | Yes | No | Yes | Yes |
| DsMdDAP | PK_DSMDDAP | Yes | No | Yes | Yes |
| DsMdDepthResolution | PK_DSMDDEPTHRESOLUTION | Yes | No | Yes | Yes |

Table 4-2. Index List (3 of 5)

| Table Name | Index Name | P | F | U | C |
|--------------------------------|--------------------------------|-----|-----|-----|-----|
| DsMdDisciplineKeywords | PK_DSMDDISCIPLINEKEYWORDS | Yes | No | Yes | Yes |
| | xDsMdDisciplineKeywords | No | No | No | No |
| DsMdECSPParameterKeywords | PK_DSMDDECSPARAMETERKEYWORDS | Yes | No | Yes | Yes |
| | xDsMdECSPParameterKeywords | No | No | No | No |
| DsMdEmailAddress | PK_DSMDEMAILADDRESS | Yes | No | Yes | Yes |
| | xDsMdEmailAddress | No | No | No | No |
| DsMdFileStorage | PK_DSMDFILESTORAGE | Yes | No | Yes | Yes |
| DsMdGranuleAnalysisXref | PK_DSMDGRANULEANALYSISXREF | Yes | No | Yes | Yes |
| | xDsMdGranuleAnalysisXref | No | Yes | No | No |
| DsMdGranuleCampaignXref | PK_DSMDGRANULECAMPAIGNXREF | Yes | No | Yes | Yes |
| | xDsMdGranuleCampaignXref | No | Yes | No | No |
| DsMdGranuleInstrumentXref | PK_DSMDGRANULEINSTRUMENTXREF | Yes | No | Yes | Yes |
| DsMdGranuleLocality | PK_DSMDGRANULELOCALITY | Yes | No | Yes | Yes |
| DsMdGranulePlatformXref | PK_DSMDGRANULEPLATFORMXREF | Yes | No | Yes | Yes |
| DsMdGranuleReview | PK_DSMDGRANULEREVIEW | Yes | No | Yes | Yes |
| DsMdGranules | PK_DSMDGRANULES | Yes | No | Yes | Yes |
| | xDsMdGranulesDate | No | No | No | No |
| | xDsMdGranulesEndingDT | No | No | No | No |
| | xDsMdGranulesPHID | No | No | No | No |
| | xDsMdGranulesPrimCIId | No | Yes | No | No |
| | xDsMdGranulesShNameVidBegEnd | No | No | No | No |
| DsMdGranulesAncillaryInputXref | PK_DSMDGRANULESANCILLARYINPUTX | Yes | No | Yes | Yes |
| | xDsMdGranulesAncillaryInputXrf | No | No | No | No |
| DsMdGranuleSensorXref | PK_DSMDGRANULESENSORXREF | Yes | No | Yes | Yes |
| DsMdGranulesOrbitParmXref | PK_DSMDGRANULESORBITPARMXREF | Yes | No | Yes | Yes |
| | xDsMdGranulesOrbitParmXref | No | No | No | No |
| DsMdGranuleVersions | PK_DSMDGRANULEVERSIONS | Yes | No | Yes | Yes |
| DsMdGrBoundingRectangle | PK_DSMDGRBOUNDINGRECTANGLE | Yes | Yes | Yes | No |
| | xDsMdGrBoundingRectangle | No | No | No | Yes |
| DsMdGrCircle | PK_DSMDGRCIRCLE | Yes | Yes | Yes | No |
| | xDsMdGrCircle | No | No | No | Yes |
| DsMdGrFloatInfoContent | PK_DSMDGRFLOATINFOCONTENT | Yes | No | Yes | Yes |
| | xDsMdGrFloatInfoContent | No | No | No | No |
| DsMdGrGPolygGPolygonContainer | DsMdGrGPolygGPolygonCont_ind1 | No | No | Yes | Yes |
| DsMdGrGPolygon | PK_DSMDGRGPOLYGON | Yes | Yes | Yes | No |
| | xDsMdGrPolygon | No | No | No | Yes |
| DsMdGrIntegerInfoContent | PK_DSMDGRINTEGERINFOCONTENT | Yes | No | Yes | Yes |
| | xDsMdGrIntegerInfoContent | No | No | No | No |
| DsMdGrPoint | PK_DSMDGRPOINT | Yes | No | Yes | No |
| | xDsMdGrPoint | No | No | No | Yes |
| DsMdGrSensorCharacteristics | PK_DSMDGRSENSORCHARACTERISTICS | Yes | No | Yes | Yes |

Table 4-2. Index List (4 of 5)

| Table Name | Index Name | P | F | U | C |
|------------------------------|---|-----------------|----------------|-----------------|-----------------|
| DsMdGrStorageMedium | PK_DSMDGRSTORAGEMEDIUM | Yes | No | Yes | Yes |
| DsMdGrStringInfoContent | xDsMdGrStringInfoContent xDsMdGrStringInfoContentAttrId | No No | No Yes | No No | Yes No |
| DsMdGrVerticalSpatialDomain | PK_DSMDGRVERTICALSPATIALDOMAIN | Yes | No | Yes | Yes |
| DsMdIdentifier | PK_DSMDIDENTIFIER | Yes | No | Yes | Yes |
| DsMdInputGranule | PK_DSMDINPUTGRANULE xDsMdInputPointer | Yes No | No No | Yes No | Yes No |
| DsMdInsertSequence | pk_dsmoperatorconversion | Yes | No | Yes | Yes |
| DsMdInstrument | PK_DSMDINSTRUMENT xDsMdInstrument | Yes No | No No | Yes Yes | Yes No |
| DsMdInstrumentCharacteristic | PK_DSMDINSTRUMENTCHARACTERISTI | Yes | No | Yes | Yes |
| DsMdJoins | PK_DSMDJOINS | Yes | No | Yes | Yes |
| DsMdKeyDependency | pk_dsmkeydependency | Yes | No | Yes | Yes |
| DsMdLocality | PK_DSMDLOCALITY | Yes | No | Yes | Yes |
| DsMdMeasuredParameter | PK_DSMDMEASUREDPARAMETER | Yes | No | Yes | Yes |
| DsMdMultipleDateTimePeriod | PK_DSMDMULTIPLDATTIMEPERIOD | Yes | No | Yes | Yes |
| DsMdMultipleTypeCollection | PK_DSMDMULTIPLETYPECOLLECTION | Yes | No | Yes | Yes |
| DsMdOperationMode | PK_DSMDOPERATIONMODE | Yes | No | Yes | Yes |
| DsMdOperatorConversion | pk_dsmoperatorconversion | Yes | No | Yes | Yes |
| DsMdOrbitCalcSpatialDomain | PK_DSMDORBITCALCSPATIALDOMAIN | Yes | No | Yes | Yes |
| DsMdOrbitCalculatedSpatial | PK_DSMDORBITCALCULATEDSPATIAL xDsMdOrbitCalculatedSpatial | Yes No | No Yes | Yes Yes | Yes No |
| DsMdOrbitParametersGranule | PK_DSMDORBITPARAMETERSGRANULE xDsMdOrbitParamGranule xDsMdOrbitParamGranuleDate | Yes No No | No No No | Yes No No | Yes No No |
| DsMdOrbitPolygons | PK_DSMDORBITPOLYGONS xDsMdOrbitPolygons | Yes No | No No | Yes No | Yes No |
| DsMdOrbitPolygons__Orbit | DsMdOrbitPolygons__Orbit_ind1 | No | No | Yes | Yes |
| DsMdParmToTableVector | PK_DSMDPARMTOTABLEVECTOR | Yes | No | Yes | Yes |
| DsMdPersonOrganizationXref | PK_DSMDPERSONORGANIZATIONXREF | Yes | No | Yes | Yes |
| DsMdPGEGroup | PK_DSMDPGEGROUP | Yes | No | Yes | Yes |
| DsMdPlanarCoordinateSystems | PK_DSMDPLANARCOORDINATESYSTEMS | Yes | No | Yes | Yes |
| DsMdPlatform | PK_DSMDPLATFORM xDsMdPlatform | Yes No | No No | Yes Yes | Yes No |
| DsMdPlatformCharacteristic | PK_DSMDPLATFORMCHARACTERISTIC | Yes | No | Yes | Yes |
| DsMdPlatInstrCode | PK_DSMDPLATINSTRCODE | Yes | No | Yes | Yes |
| DsMdProcessingHistory | PK_DSMDPROCESSINGHISTORY xDsMdProcessingHistoryDate xDsMdProcessingHistoryPointer | Yes No No | No No No | Yes No No | Yes No No |
| DsMdProcessingQA | PK_DSMDPROCESSINGQA | Yes | No | Yes | Yes |

Table 4-2. Index List (5 of 5)

| Table Name | Index Name | P | F | U | C |
|----------------------------|-------------------------------|-----|----|-----|-----|
| DsMdProductDbXref | PK_DSMDPRODUCTDBXREF | Yes | No | Yes | Yes |
| DsMdQaGranule | PK_DSMDQAGRANULE | Yes | No | Yes | Yes |
| | xDsGranuleDate | No | No | No | No |
| | xDsMdGranuleGranuleId | No | No | No | No |
| | xDsMdQaGranulePointer | No | No | No | No |
| DsMdQualityTextComment | PK_DSMDQUALITYTEXTCOMMENT | Yes | No | Yes | Yes |
| DsMdRangeDateTime | PK_DSMDRANGEDATETIME | Yes | No | Yes | Yes |
| DsMdRegularPeriodic | PK_DSMDREGULARPERIODIC | Yes | No | Yes | Yes |
| DsMdSDSRVLookup | PK_DSMDLOOKUP | Yes | No | Yes | Yes |
| DsMdSDSRVVersions | PK_DSMDSDSRVVERSIONS | Yes | No | Yes | Yes |
| DsMdSensor | PK_DSMDSENSOR | Yes | No | Yes | Yes |
| | xDsMdSensor | No | No | Yes | No |
| DsMdSensorCharacteristic | PK_DSMDSENSORCHARACTERISTIC | Yes | No | Yes | Yes |
| DsMdSingleDateTime | PK_DSMDSINGLEDATETIME | Yes | No | Yes | Yes |
| DsMdSpatial | PK_DSMDSPATIAL | Yes | No | Yes | Yes |
| DsMdSpatialKeyword | PK_DSMDSPATIALKEYWORD | Yes | No | Yes | Yes |
| DsMdSSAPComponent | PK_DSMDSSAPCOMPONENT | Yes | No | Yes | Yes |
| DsMdSSAPComponentAPVersion | PK_DSMDSSAPCOMPONENTAPVERSION | Yes | No | Yes | Yes |
| DsMdTelephoneNumbers | PK_DSMDTELEPHONENUMBERS | Yes | No | Yes | Yes |
| DsMdTemporal | PK_DSMDTEMPORAL | Yes | No | Yes | Yes |
| DsMdTemporalKeyword | PK_DSMDTEMPORALKEYWORD | Yes | No | Yes | Yes |
| DsMdUnloadList | pk_dsmdunloadlist | Yes | No | Yes | Yes |
| DsMdUpdateXref | pk_dsmdupdatexref | Yes | No | Yes | Yes |
| DsMdUserCommentDocument | PK_DSMDUSERCOMMENTDOCUMENT | Yes | No | Yes | Yes |
| DsMdValidationDocument | PK_DSMDVALIDATIONDOCUMENT | Yes | No | Yes | Yes |
| DsMdXAR | PK_DSMDXAR | Yes | No | Yes | Yes |
| | xDsMdXARId | No | No | No | No |
| DsSiReqDomain | PK_DSSIREQDOMAIN | Yes | No | Yes | Yes |
| DsSiRequest | PK_DSSIREQUEST | Yes | No | Yes | Yes |

4.2 Segments

Sybase supports the declaration of segments. A segment is a named pointer to a storage device(s). Segments are used to physically allocate a database object to a particular storage device. Segments defined for the SDSRV and all other subsystem databases are described in Table 4-3.

Table 4-3. Segment Descriptions

| Segment Name | Description |
|---------------|--|
| default | Default data segment used if no other segment specified in the create statement. |
| logsegment | SYSLOGS, Transaction Logs |
| systemsegment | System tables and indexes. |
| SDSOPSDAT01 | SDSRV OPS mode data segment. |
| SDSOPSIDX01 | SDSRV OPS mode index segment. |
| SDSTS1DAT01 | SDSRV TS1 mode data segment. |
| SDSTS1IDX01 | SDSRV TS1 mode index segment. |
| SDSTS2DAT01 | SDSRV TS2 mode data segment. |
| SDSTS2IDX01 | SDSRV TS2 mode index segment. |

4.3 Caches

A cache is a block of memory that is used by Sybase to retain and manage pages that are currently being processed. By default, each database contains three caches:

Data cache – retains most recently accessed data and index pages

Procedure cache – retains most recently accessed stored procedure pages

User transaction log cache – transaction log pages that have not yet been written to disk for each user

The size of each of these default caches is a configurable item which must be managed on a per DAAC basis. These caches may be increased or decreased by the DAAC DBA as needed.

The data cache can be further subdivided into named caches. A *named cache* is a block of memory that is named and used by the DBMS to store data pages for select tables and/or indexes. Assigning a database table to named cache causes accessed pages to be loaded into memory and retained. The named cache does not need to be allocated to accommodate the entire database table since the DBMS manages the cache according to use. Named caches greatly increase performance by eliminating the time associated for disk input and output (I/O). There are no named caches that are currently defined for the SDSRVSubsystem database. Named caches may be defined as the memory usage of the SDSRV database becomes more well known and the DAACs move into an operational environment. As named caches are defined this portion of the document will be updated.

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5. Database Security

5.1 Initial Users

The database security discussed within this section is bounded to security implementation within the Sybase SQL Server DBMS. A Sybase general approach to security is adopted as illustrated in Figure 5-1.

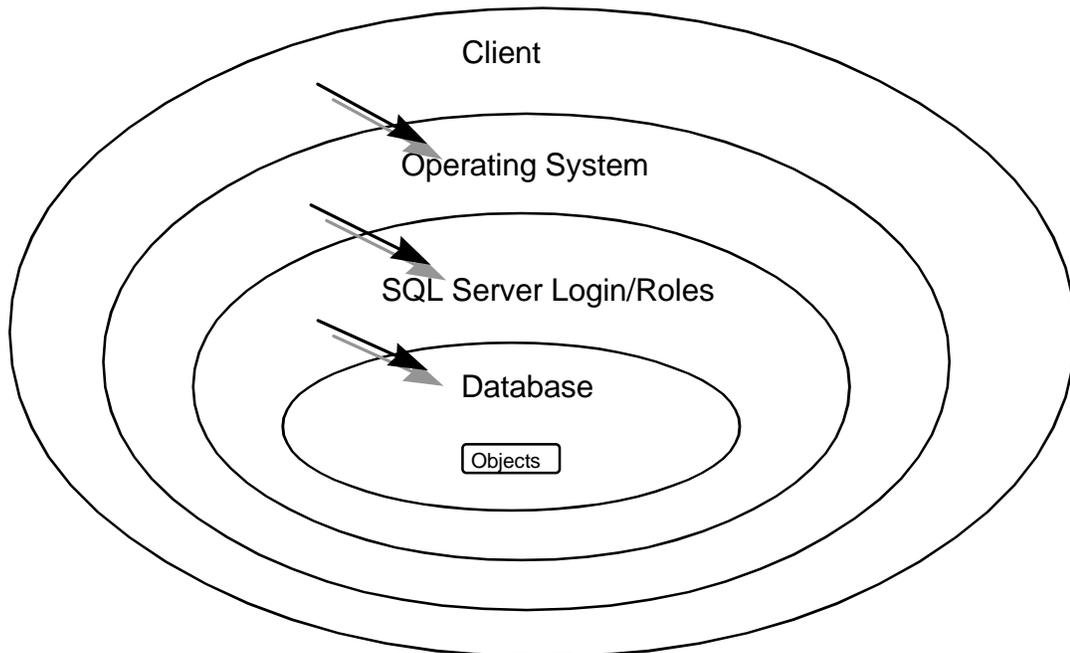


Figure 5-1. Sybase General Approach to SQL Server Security¹

The client (user) requires a SQL Server login to access the DBMS. The login is assigned to a user with certain related permissions for gaining access to particular objects (e.g., database tables, views, commands) within the database. The System Administrator may grant or revoke objects permissions for a login individually or based on defined group or roles.

Groups are a means of logically associating users with similar data access needs. Once a group has been defined, object and command permissions can be granted to that group. A user who is member of a group inherits all of the permissions granted to that group. No groups have been initially defined in the <SUBSYS> Subsystem “default database. The DAACs should define

¹ Reference Sybase Student Guide: *Advanced SQL Server Administration*.

database groups to support the database security requirements of their individual DAACs. Security for local DAAC users should be controlled by assigning each user to the appropriate group.

Roles were introduced in Sybase to allow a structured means for granting users the permissions needed to perform standard database administration activities and also provide a means for easily identifying such users. There are six pre-defined roles that may be assigned to a user. A definition of each of these roles follows, as well as a description of the types of activities that may be performed by each role.

System Administrator (*sa_role*): This role is used to grant a specific user permissions needed to perform standard system administrator duties including:

- installing SQL server and specific SQL server modules
- managing the allocation of physical storage
- tuning configuration parameters
- creating databases

Site Security Officer (*sso_role*): This role is used to grant a specific user the permissions needed to maintain SQL server security including:

- adding server logins
- administrating passwords
- managing the audit system
- granting users all roles except the *sa_role*

Operator (*oper_role*): This role is used to grant a specific user the permissions needed to perform standard functions for the database including:

- dumping transactions and databases
- loading transactions and databases

Navigator (*navigator_role*): This role is used to grant a specific user the permissions needed to manage the navigation server.

Replication (*replication_role*): This role is used to grant a specific user the permissions needed to manage the replication server.

Sybase Technical Support (*sybase_ts_role*): This role is used to grant a specific user the permissions needed to execute *database consistency checker (dbcc)*, a Sybase supplied utility supporting commands that are normally outside of the realm of routine system administrator activities.

The DAACs should review these roles and assign them to the appropriate login and/or groups.

5.2 Login/Group Object Permissions

During initial database installation logins used by the ECS custom code were created and permissions assigned for access to the SDSRV Subsystem database. In addition, special database installation login, sdsrv_role, was created to support database installation needs. For each login, the level of access is limited to that associated with their login, group or assigned group/role. Object Permissions are set within the installation scripts of the SDSRV Subsystem for each object and group/role.

Upon initial installation the following users will have access to SDSRV database. The level of access is limited to that associated with their assigned group and/or role. A complete definition of each if these groups and roles is given below in Table 5-1. .

Table 5-1.

| Login Name | Default Database | Group/role |
|-----------------------|------------------------|------------|
| EcDsScienceDataServer | EcDsScienceDataServer1 | sdsrv |
| EcDsHdfEosServer | EcDsScienceDataServer1 | sdsrv |
| Sdsrv_role | EcDsScienceDataServer1 | sa_role |

Permissions are identified in Table 5-3. A specification of the object permissions is contained in Table 5-2.

Table 5-2. Permission Key

| Permission | Description |
|------------|-------------|
| A | All |
| S | Select |
| I | Insert |
| U | Update |
| D | Delete |
| E | Execute |

Table 5-3. Object Permissions (1 of 6)

| Role | Group/SYBASE LOGIN | Object | Permissions Granted | | | | | | |
|---------|--------------------|--------------------------------|---------------------|---|---|---|---|---|--|
| | | | A | S | I | U | D | E | |
| None | sa | All | Y | | | | | | |
| sa_role | Sdsrv_role | All | Y | | | | | | |
| | sdsrv | DsDeDictionaryAttribute | | | | | | | |
| | | DsDeDictionaryContent | | | | | | | |
| | | DsDeDictionaryRule | | | | | | | |
| | | DsDeECSKeywordValid | | | | | | | |
| | | DsGeESDTConfiguredType | | | | X | X | X | |
| | | DsMdAdditionalAttributes | | | | X | X | X | |
| | | DsMdAlgorithmPackage | | | | X | X | X | |
| | | DsMdAltitudeResolution | | | | X | X | X | |
| | | DsMdAnalysisSource | | | | X | X | X | |
| | | DsMdAncillaryInput | | | | X | X | X | |
| | | DsMdAncillaryInputGranule | | | | X | X | X | |
| | | DsMdApContactXref | | | | X | X | X | |
| | | DsMdAPSAPComponentXref | | | | X | X | X | |
| | | DsMdAttributeConversion | | | | | | | |
| | | DsMdAttributeList | | | | | | | |
| | | DsMdAttributeTableXref | | | | | | | |
| | | DsMdBaseDependent | | | | | | | |
| | | DsMdBrowse | | | | X | X | X | |
| | | DsMdBrowseGranuleXref | | | | X | X | X | |
| | | DsMdCampaign | | | | X | X | X | |
| | | DsMdCIBoundingRectangle | | | | X | X | X | |
| | | DsMdCICircle | | | | X | X | X | |
| | | DsMdCIGPolygGPolygonContainer | | | | X | X | X | |
| | | DsMdCIGPolygon | | | | X | X | X | |
| | | DsMdCIPoint | | | | X | X | X | |
| | | DsMdCollBrowseXref | | | | X | X | X | |
| | | DsMdCollDisciplineKeywordXref | | | | X | X | X | |
| | | DsMdCollectionAddnlAttribsXref | | | | X | X | X | |
| | | DsMdCollectionAnalysisXref | | | | X | X | X | |
| | | DsMdCollectionAPXref | | | | X | X | X | |
| | | DsMdCollectionAssociation | | | | X | X | X | |
| | | DsMdCollectionCampaignXref | | | | X | X | X | |
| | | DsMdCollectionContactXref | | | | X | X | X | |
| | | DsMdCollectionGranuleXref | | | | X | X | X | |
| | | DsMdCollectionInstrumentXref | | | | X | X | X | |
| | | DsMdCollectionPlatformXref | | | | X | X | X | |
| | | DsMdCollections | | | | | | | |
| | | DsMdCollectionSensorXref | | | | X | X | X | |
| | | DsMdCollFloatInfoContent | | | | X | X | X | |
| | | DsMdCollIntegerInfoContent | | | | X | X | X | |
| | | DsMdCollReview | | | | X | X | X | |

Table 5-3. Object Permissions (2 of 6)

| Role | Group/SYBASE LOGIN | Object | Permissions Granted | | | | | |
|------|--------------------|--------------------------------|---------------------|---|---|---|---|---|
| | | | A | S | I | U | D | E |
| | | DsMdCollStorageMedium | | | X | X | X | |
| | | DsMdCollStringInfoContent | | | X | X | X | |
| | | DsMdCollVerticalSpatialDomain | | | X | X | X | |
| | | DsMdCollZoneIdentifier | | | X | X | X | |
| | | DsMdCommandConversion | | | | | | |
| | | DsMdContact | | | X | X | X | |
| | | DsMdContactAddress | | | X | X | X | |
| | | DsMdContactOrganizations | | | X | X | X | |
| | | DsMdContactPersons | | | X | X | X | |
| | | DsMdCSDTDescription | | | X | X | X | |
| | | DsMdDAP | | | X | X | X | |
| | | DsMdDepthResolution | | | X | X | X | |
| | | DsMdDisciplineKeywords | | | X | X | X | |
| | | DsMdECSPParameterKeywords | | | X | X | X | |
| | | DsMdEmailAddress | | | X | X | X | |
| | | DsMdFileStorage | | | X | X | X | |
| | | DsMdGranuleAnalysisXref | | | X | X | X | |
| | | DsMdGranuleCampaignXref | | | X | X | X | |
| | | DsMdGranuleInstrumentXref | | | X | X | X | |
| | | DsMdGranuleLocality | | | X | X | X | |
| | | DsMdGranulePlatformXref | | | X | X | X | |
| | | DsMdGranuleReview | | | X | X | X | |
| | | DsMdGranules | | | | | | |
| | | DsMdGranulesAncillaryInputXref | | | X | X | X | |
| | | DsMdGranuleSensorXref | | | X | X | X | |
| | | DsMdGranulesOrbitParmXref | | | X | X | X | |
| | | DsMdGranuleVersions | | | X | X | X | |
| | | DsMdGrBoundingRectangle | | | X | X | X | |
| | | DsMdGrCircle | | | X | X | X | |
| | | DsMdGrFloatInfoContent | | | X | X | X | |
| | | DsMdGrGPolygGPolygonContainer | | | X | X | X | |
| | | DsMdGrGPolygon | | | X | X | X | |
| | | DsMdGrIntegerInfoContent | | | X | X | X | |
| | | DsMdGrPoint | | | X | X | X | |
| | | DsMdGrSensorCharacteristics | | | X | X | X | |
| | | DsMdGrStorageMedium | | | X | X | X | |
| | | DsMdGrStringInfoContent | | | X | X | X | |
| | | DsMdGrVerticalSpatialDomain | | | X | X | X | |
| | | DsMdIdentifier | | | X | X | X | |
| | | DsMdInputGranule | | | X | X | X | |
| | | DsMdInsertSequence | | | | | | |
| | | DsMdInstrument | | | X | X | X | |
| | | DsMdInstrumentCharacteristic | | | X | X | X | |

Table 5-3. Object Permissions (3 of 6)

| Role | Group/SYBASE LOGIN | Object | Permissions Granted | | | | | |
|------|--------------------|-----------------------------|---------------------|---|---|---|---|---|
| | | | A | S | I | U | D | E |
| | | DsMdJoins | | | | | | |
| | | DsMdKeyDependency | | | | | | |
| | | DsMdLocality | | | X | X | X | |
| | | DsMdMeasuredParameter | | | X | X | X | |
| | | DsMdMultipleDateTimePeriod | | | X | X | X | |
| | | DsMdMultipleTypeCollection | | | X | X | X | |
| | | DsMdOperationMode | | | X | X | X | |
| | | DsMdOperatorConversion | | | | | | |
| | | DsMdOrbitCalcSpatialDomain | | | X | X | X | |
| | | DsMdOrbitCalculatedSpatial | | | X | X | X | |
| | | DsMdOrbitParametersGranule | | | X | X | X | |
| | | DsMdOrbitPolygons | | | X | X | X | |
| | | DsMdOrbitPolygons__Orbit | | | X | X | X | |
| | | DsMdParmToTableVector | | | | | | |
| | | DsMdPersonOrganizationXref | | | X | X | X | |
| | | DsMdPGEGroup | | | X | X | X | |
| | | DsMdPlanarCoordinateSystems | | | X | X | X | |
| | | DsMdPlatform | | | X | X | X | |
| | | DsMdPlatformCharacteristic | | | X | X | X | |
| | | DsMdPlatInstrCode | | | X | X | X | |
| | | DsMdProcessingHistory | | | X | X | X | |
| | | DsMdProcessingQA | | | X | X | X | |
| | | DsMdProductDbXref | | | X | X | X | |
| | | DsMdQaGranule | | | X | X | X | |
| | | DsMdQualityTextComment | | | X | X | X | |
| | | DsMdRangeDateTime | | | X | X | X | |
| | | DsMdRegularPeriodic | | | X | X | X | |
| | | DsMdSDSRVLookup | | | | | | |
| | | DsMdSDSRVVersions | | | | | | |
| | | DsMdSensor | | | X | X | X | |
| | | DsMdSensorCharacteristic | | | X | X | X | |
| | | DsMdSingleDateTime | | | X | X | X | |
| | | DsMdSpatial | | | X | X | X | |
| | | DsMdSpatialKeyword | | | X | X | X | |
| | | DsMdSSAPComponent | | | X | X | X | |
| | | DsMdSSAPComponentAPVersion | | | X | X | X | |
| | | DsMdTelephoneNumbers | | | X | X | X | |
| | | DsMdTemporal | | | X | X | X | |
| | | DsMdTemporalKeyword | | | X | X | X | |
| | | DsMdUnloadList | | | | | | |
| | | DsMdUpdateXref | | | | | | |
| | | DsMdUserCommentDocument | | | X | X | X | |
| | | DsMdValidationDocument | | | X | X | X | |

Table 5-3. Object Permissions (4 of 6)

| Role | Group/SYBASE LOGIN | Object | Permissions Granted | | | | | |
|------|--------------------|--------------------------------|---------------------|---|---|---|---|---|
| | | | A | S | I | U | D | E |
| | | DsMdXAR | | | X | X | X | |
| | public | DsDeDictionaryAttribute | | | X | | | |
| | | DsDeDictionaryContent | | | X | | | |
| | | DsDeDictionaryRule | | | X | | | |
| | | DsDeECSKeywordValid | | | X | | | |
| | | DsGeESDTConfiguredType | | | X | | | |
| | | DsMdAdditionalAttributes | | | X | | | |
| | | DsMdAlgorithmPackage | | | X | | | |
| | | DsMdAltitudeResolution | | | X | | | |
| | | DsMdAnalysisSource | | | X | | | |
| | | DsMdAncillaryInput | | | X | | | |
| | | DsMdAncillaryInputGranule | | | X | | | |
| | | DsMdApContactXref | | | X | | | |
| | | DsMdAPSAPComponentXref | | | X | | | |
| | | DsMdAttributeConversion | | | X | | | |
| | | DsMdAttributeList | | | X | | | |
| | | DsMdAttributeTableXref | | | X | | | |
| | | DsMdBaseDependent | | | X | | | |
| | | DsMdBrowse | | | X | | | |
| | | DsMdBrowseGranuleXref | | | X | | | |
| | | DsMdCampaign | | | X | | | |
| | | DsMdCIBoundingRectangle | | | X | | | |
| | | DsMdCICircle | | | X | | | |
| | | DsMdCIGPolygGPolygonContainer | | | X | | | |
| | | DsMdCIGPolygon | | | X | | | |
| | | DsMdCIPoint | | | X | | | |
| | | DsMdCollBrowseXref | | | X | | | |
| | | DsMdCollDisciplineKeywordXref | | | X | | | |
| | | DsMdCollectionAddnlAttribsXref | | | X | | | |
| | | DsMdCollectionAnalysisXref | | | X | | | |
| | | DsMdCollectionAPXref | | | X | | | |
| | | DsMdCollectionAssociation | | | X | | | |
| | | DsMdCollectionCampaignXref | | | X | | | |
| | | DsMdCollectionContactXref | | | X | | | |
| | | DsMdCollectionGranuleXref | | | X | | | |
| | | DsMdCollectionInstrumentXref | | | X | | | |
| | | DsMdCollectionPlatformXref | | | X | | | |
| | | DsMdCollections | | | | | | |
| | | DsMdCollectionSensorXref | | | X | | | |
| | | DsMdCollFloatInfoContent | | | X | | | |
| | | DsMdCollIntegerInfoContent | | | X | | | |
| | | DsMdCollReview | | | X | | | |
| | | DsMdCollStorageMedium | | | X | | | |

Table 5-3. Object Permissions (5 of 6)

| Role | Group/SYBASE LOGIN | Object | Permissions Granted | | | | | |
|------|--------------------|--------------------------------|---------------------|---|---|---|---|---|
| | | | A | S | I | U | D | E |
| | | DsMdCollStringInfoContent | | | X | | | |
| | | DsMdCollVerticalSpatialDomain | | | X | | | |
| | | DsMdCollZonIdentifier | | | X | | | |
| | | DsMdCommandConversion | | | X | | | |
| | | DsMdContact | | | X | | | |
| | | DsMdContactAddress | | | X | | | |
| | | DsMdContactOrganizations | | | X | | | |
| | | DsMdContactPersons | | | X | | | |
| | | DsMdCSDTDescription | | | X | | | |
| | | DsMdDAP | | | X | | | |
| | | DsMdDepthResolution | | | X | | | |
| | | DsMdDisciplineKeywords | | | X | | | |
| | | DsMdECSPParameterKeywords | | | X | | | |
| | | DsMdEmailAddress | | | X | | | |
| | | DsMdFileStorage | | | X | | | |
| | | DsMdGranuleAnalysisXref | | | X | | | |
| | | DsMdGranuleCampaignXref | | | X | | | |
| | | DsMdGranuleInstrumentXref | | | X | | | |
| | | DsMdGranuleLocality | | | X | | | |
| | | DsMdGranulePlatformXref | | | X | | | |
| | | DsMdGranuleReview | | | X | | | |
| | | DsMdGranules | | | | | | |
| | | DsMdGranulesAncillaryInputXref | | | X | | | |
| | | DsMdGranuleSensorXref | | | X | | | |
| | | DsMdGranulesOrbitParmXref | | | X | | | |
| | | DsMdGranuleVersions | | | X | | | |
| | | DsMdGrBoundingRectangle | | | X | | | |
| | | DsMdGrCircle | | | X | | | |
| | | DsMdGrFloatInfoContent | | | X | | | |
| | | DsMdGrGPolygGPolygonContainer | | | X | | | |
| | | DsMdGrGPolygon | | | X | | | |
| | | DsMdGrIntegerInfoContent | | | X | | | |
| | | DsMdGrPoint | | | X | | | |
| | | DsMdGrSensorCharacteristics | | | X | | | |
| | | DsMdGrStorageMedium | | | X | | | |
| | | DsMdGrStringInfoContent | | | X | | | |
| | | DsMdGrVerticalSpatialDomain | | | X | | | |
| | | DsMdIdentifier | | | X | | | |
| | | DsMdInputGranule | | | X | | | |
| | | DsMdInsertSequence | | | X | | | |
| | | DsMdInstrument | | | X | | | |
| | | DsMdInstrumentCharacteristic | | | X | | | |
| | | DsMdJoins | | | X | | | |

Table 5-3. Object Permissions (6 of 6)

| Role | Group/SYBASE LOGIN | Object | Permissions Granted | | | | | |
|------|--------------------|-----------------------------|---------------------|---|---|---|---|---|
| | | | A | S | I | U | D | E |
| | | DsMdKeyDependency | | | X | | | |
| | | DsMdLocality | | | X | | | |
| | | DsMdMeasuredParameter | | | X | | | |
| | | DsMdMultipleDateTimePeriod | | | X | | | |
| | | DsMdMultipleTypeCollection | | | X | | | |
| | | DsMdOperationMode | | | X | | | |
| | | DsMdOperatorConversion | | | X | | | |
| | | DsMdOrbitCalcSpatialDomain | | | X | | | |
| | | DsMdOrbitCalculatedSpatial | | | X | | | |
| | | DsMdOrbitParametersGranule | | | X | | | |
| | | DsMdOrbitPolygons | | | X | | | |
| | | DsMdOrbitPolygons__Orbit | | | X | | | |
| | | DsMdParmToTableVector | | | X | | | |
| | | DsMdPersonOrganizationXref | | | X | | | |
| | | DsMdPGEGroup | | | X | | | |
| | | DsMdPlanarCoordinateSystems | | | X | | | |
| | | DsMdPlatform | | | X | | | |
| | | DsMdPlatformCharacteristic | | | X | | | |
| | | DsMdPlatInstrCode | | | X | | | |
| | | DsMdProcessingHistory | | | X | | | |
| | | DsMdProcessingQA | | | X | | | |
| | | DsMdProductDbXref | | | X | | | |
| | | DsMdQaGranule | | | X | | | |
| | | DsMdQualityTextComment | | | X | | | |
| | | DsMdRangeDateTime | | | X | | | |
| | | DsMdRegularPeriodic | | | X | | | |
| | | DsMdSDSRVLookup | | | X | | | |
| | | DsMdSDSRVVersions | | | X | | | |
| | | DsMdSensor | | | X | | | |
| | | DsMdSensorCharacteristic | | | X | | | |
| | | DsMdSingleDateTime | | | X | | | |
| | | DsMdSpatial | | | X | | | |
| | | DsMdSpatialKeyword | | | X | | | |
| | | DsMdSSAPComponent | | | X | | | |
| | | DsMdSSAPComponentAPVersion | | | X | | | |
| | | DsMdTelephoneNumbers | | | X | | | |
| | | DsMdTemporal | | | X | | | |
| | | DsMdTemporalKeyword | | | X | | | |
| | | DsMdUnloadList | | | X | | | |
| | | DsMdUpdateXref | | | X | | | |
| | | DsMdUserCommentDocument | | | X | | | |
| | | DsMdValidationDocument | | | X | | | |
| | | DsMdXAR | | | X | | | |

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6. Scripts

Sub-directories that support the creation of the SDSRV database are found in the ClearCase /ecs/formal/DSS/sdsrv/sybase/db directory. Each sub-directory has its own Imakefile. The entire schema is delivered by using the Makefile in the /ecs/formal/DSS/sdsrv/sybase/db directory which allows all the sub-directories to be delivered at the same time. The README file found in the /sybase/db directory provides information necessary to understand prior to running the scripts. The DsDbREADME file found in the ../sybase/db/tools directory contains documentation relevant to the installation process.

The directories have the following structure:

proc = stored procedures
tables = table definitions,
triggers = trigger definitions
data = important schema data inputs
tools = tool kit, including DsDbbuild_relb0_schema
doc = documentation (includes schema - pdm files from S-designor)
ruldfilt = rule/default definitions.

The content of these directories necessary for building a working schema are delivered by the ../sybase/db/Makefile and ../sybase/db/proc/Imakefile, ../sybase/db/tables/Imakefile,, ../sybase/db/triggers/Imakefile, ../sybase/db/tools/Imakefile into a single target directory.

6.1 Installation Scripts

Scripts used to support installation of the SDSRV database are listed in Table 6-1. These scripts are found in the directory /ecs/formal/DSS/sdsrv/sybase/db/tools.

Table 6-1. Installation Scripts

| Script File | Description |
|--------------|--|
| EcDsDbBuild | Create a new initialized SDSRV database |
| EcDsDbPatch | Upgrade an existing <SUBSYS> database to the next valid database version level. |
| EcDsDbDump | Dump a specified <SUBSYS> database on demand |
| EcDsDbLoad | Load a specified <SUBSYS> database on demand. |
| EcDbDesc | List and detail the structure of all database objects in the specified ECS database. |
| EcDbChecksum | Provide row count totals for each of the tables in a specific ECS database |

6.2 De-Installation Scripts

Scripts used to support de-installation of the SDSRV Subsystem database are listed in Table 6-2.

Table 6-2. De-Installation Scripts

| Script File | Description |
|-------------|--|
| EcDsDbDrop | Drop all objects in the specified <SUBSYS> database. |

6.3 Backup and Recovery Scripts

Scripts used to perform backup and recovery of the SDSRV Subsystem database are listed in Table 6-3. These are configured to run automatically using the Unix chron facility. Transaction logs dumps (incremental dumps) are performed 3 times each day. Database dumps (full database dumps) are performed once each day.

Table 6-3. Backup and Recovery Scripts

| Script File | Description |
|--------------------|--|
| EcCoDbSyb_DumpDb | Dumps all databases for managed by the SQL server instance. |
| EcCoDbSyb_DumpTran | Dumps the transaction log for all databases managed by the SQL server. |

6.4 Miscellaneous Scripts

Miscellaneous scripts applicable to the SDSRV Subsystem database are listed in Table 6-4.

Table 6-4. Miscellaneous Scripts and Input Data Files (1 of 3)

| Script | Description |
|----------------------|---|
| EcDdmMonitorServer | Monitors segment usage and user levels for a selected SQL server. Superseded by DbVision COTS. |
| EcDdmSegmentUse | Monitors segment usage. Used by EcDdmMonitorServer. Superseded by DbVision COTS. |
| EcDdmUserCounts | Monitors user access. Used by EcDdmMonitorServer. Superseded by DbVision COTS. |
| EcCoDbSyb_CkErrorLog | Checks the error log for error messages warranting DBO attention. Superseded by DbVision. |
| EcCoDbSyb_DbStat | Updates index statistics for each table in the selected database. |
| EcCoDbSyb_DboMail | Emails DBA error notification via e-mail. Used by EcCoDbSyb_DumpDb/Tran and EcCoDbSyb_CkErrorLog scripts. |

Table 6-4. Miscellaneous Scripts and Input Data Files (2 of 3)

| Script | Description |
|---|---|
| ../tools/EcDsSrDbPatch | Apply patch to a SDSRV database by running the DsDbBuildSchemaPatch. |
| ../tools/DsDbUserCheck | Check DsDbUserList |
| ../tools/DsDbUserList | Contains a list of valid usernames |
| ../tools/DsDbSybaseLogins.csh | adds logins to the SYBASE SQL Server |
| ../tools/DsDbisql | preprocessor for isql |
| ../tools/DsDbCleanGranules | Used for testing. Deletes all granules associated with a given ESDT name. Included for SDSRV testing engineers. |
| ../tools/DsDbCleanCollection | Used for testing. Deletes the Collection associated with a given ESDT name. Included for SDSRV testing engineers. |
| ../tools/DsDbCleanSingleGranule | Used for testing. Deletes a single granule given a dbID. (You must look at the database to get the dbID for a granule). Included for SDSRV testing engineers. |
| ../tools/DsDbMocExt | Used by MOC to extract Landsat 7 metadata from SDSRV database and transfer data to remote site. |
| ../tools/DsDbMocRc | Used by DsDbMocExt to extract Landsat 7 metadata from SDSRV database. This is a template to be customized at the sites. |
| ../tables/DsDbB0DataTypes.sql | Creates user defined data types and defaults with any bindings. |
| ../tables/DsDbB0DAPTables.sql | Generates the Delivered Algorithm Package tables. |
| ../tables/DsDbB0SpatialTables.sql | Generates the Spatial tables. |
| ../tables/DsDbB0TemporalTables.sql | Generates the Temporal tables. |
| ../tables/DsDbB0GranuleTables.sql | Generates the Granule tables. |
| ../tables/DsDbB0CollectionTables.sql | Generates the Collection tables. |
| ../tables/DsDbB0DataOrigTables.sql | Generates the Data Originator tables. |
| ../tables/DsDbB0ContactTables.sql | Generates the Contact tables. |
| ../tables/DsDbB0DictionaryTables.sql | Generates the Data Dictionary tables. |
| ../tables/DsDbB0SystemTables.sql | Generates the system tables. |
| ../tables/DsDbB0SystemWrapperTables.sql | Generates the system wrapper tables |
| ../proc/DsDbDeleteProcs.sql | Generates all delete stored procedures. |
| ../proc/DsDbInsertProcs.sql | Generates all insert stored procedures. |

Table 6-4. Miscellaneous Scripts and Input Data Files (3 of 3)

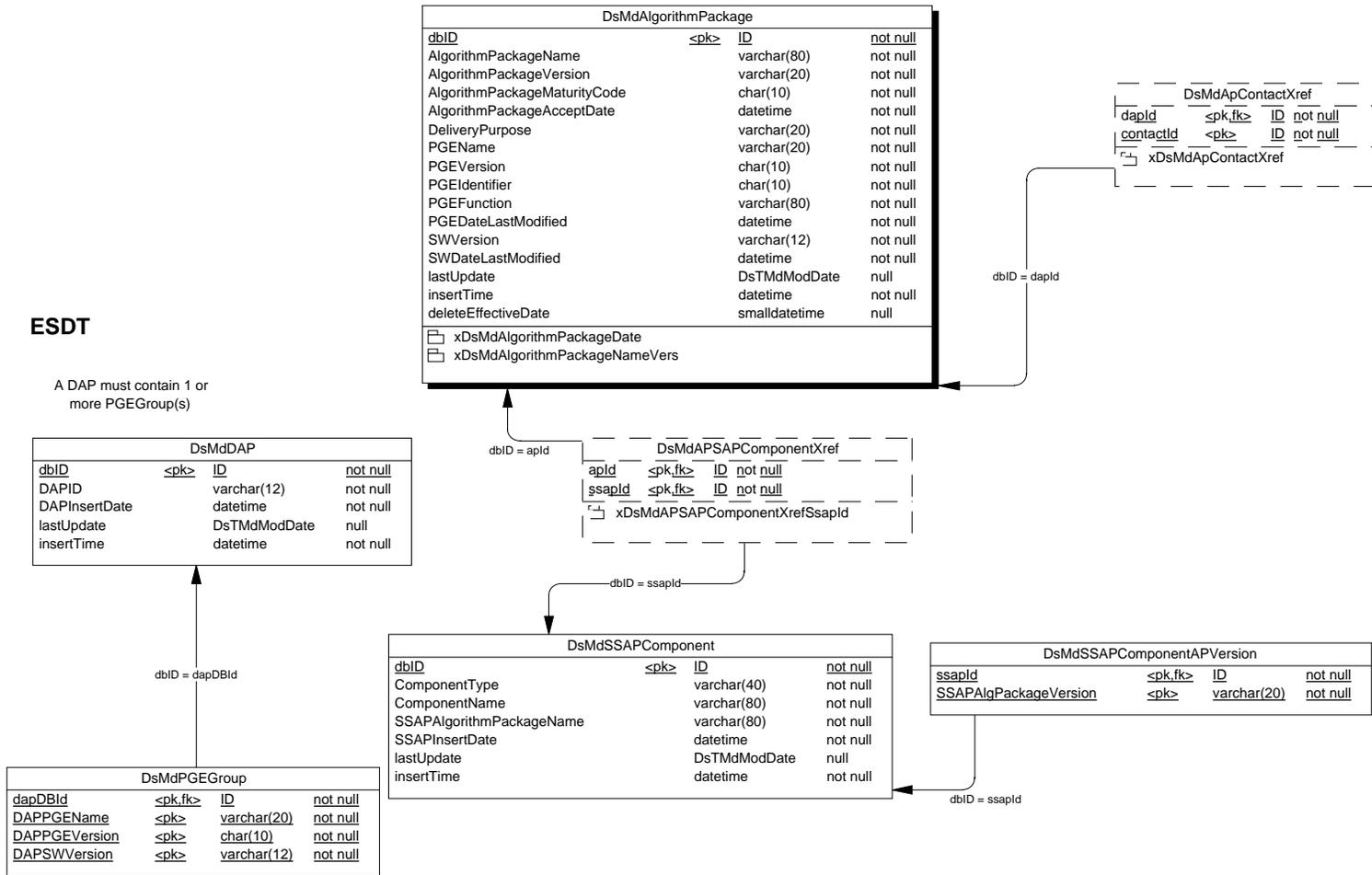
| Script | Description |
|-----------------------------------|--|
| ../proc/DsDbSelectProcs.sql | Generates all select stored procedures. |
| ../proc/DsDbUpdateProcs.sql | Generates all update stored procedures. |
| ../proc/DsDbOtherProcs.sql | Generates all other stored procedures that are used for various purposes other than delete, insert, select, or update. |
| ../triggers/DsDbTriggers.sql | Generates all the triggers on the tables. |
| ../data/DsDbGenGrants.sql | Generates the grants on all objects and assigns the permissions. |
| ../data/DsDbDictionaryData.sql | Installs system level metadata for the data dictionary tables. Required to make SDSRV properly work. |
| ../data/DsDbGenSystemData.sql | Installs system level metadata for the data dictionary tables. Required to make SDSRV properly work. |
| ../data/DsDbGenWrapCommands.sql | Installs system level metadata for wrapper tables. Required to make SDSRV properly work. |
| ../tools/DsDbChange_DB_Schema.sql | SQL used to do schema convert from drop2 - drop3 |
| ../patches/DsDbBuildSchemaPatch | Korn shell script used to run the patches |
| ../patches/DsDbPatch301.sql | SQL used to do schema convert from drop3 - drop3.01 |
| ../patches/DsDbPatch350.sql | SQL used to do schema convert from drop3.02 - drop3.50 |
| ../patches/DsDbPatch40.sql | SQL used to do schema convert from drop3.50 - drop4.0 |
| ../patches/DsDbPatch40A.sql | SQL used to do schema convert from drop4.0 - drop4.0A |
| ../patches/DsDbPatch40B.sql | SQL used to do schema convert from drop4.0 - drop4.0B |
| ../tools/DsDbBuildConstraints.sql | SQL used to rebuild all RI constraints. Used by Build and Update scripts. |

Appendix A. Science Data Server Entity Relationship Diagrams

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ESDT

A DAP must contain 1 or more PGEGroup(s)



The combination of PGEName, PGEVersion, and SWVersion is not unique to a DAP. It can occur in multiple DAPs.

ESDT

Figure A-1. Delivered Algorithm Package

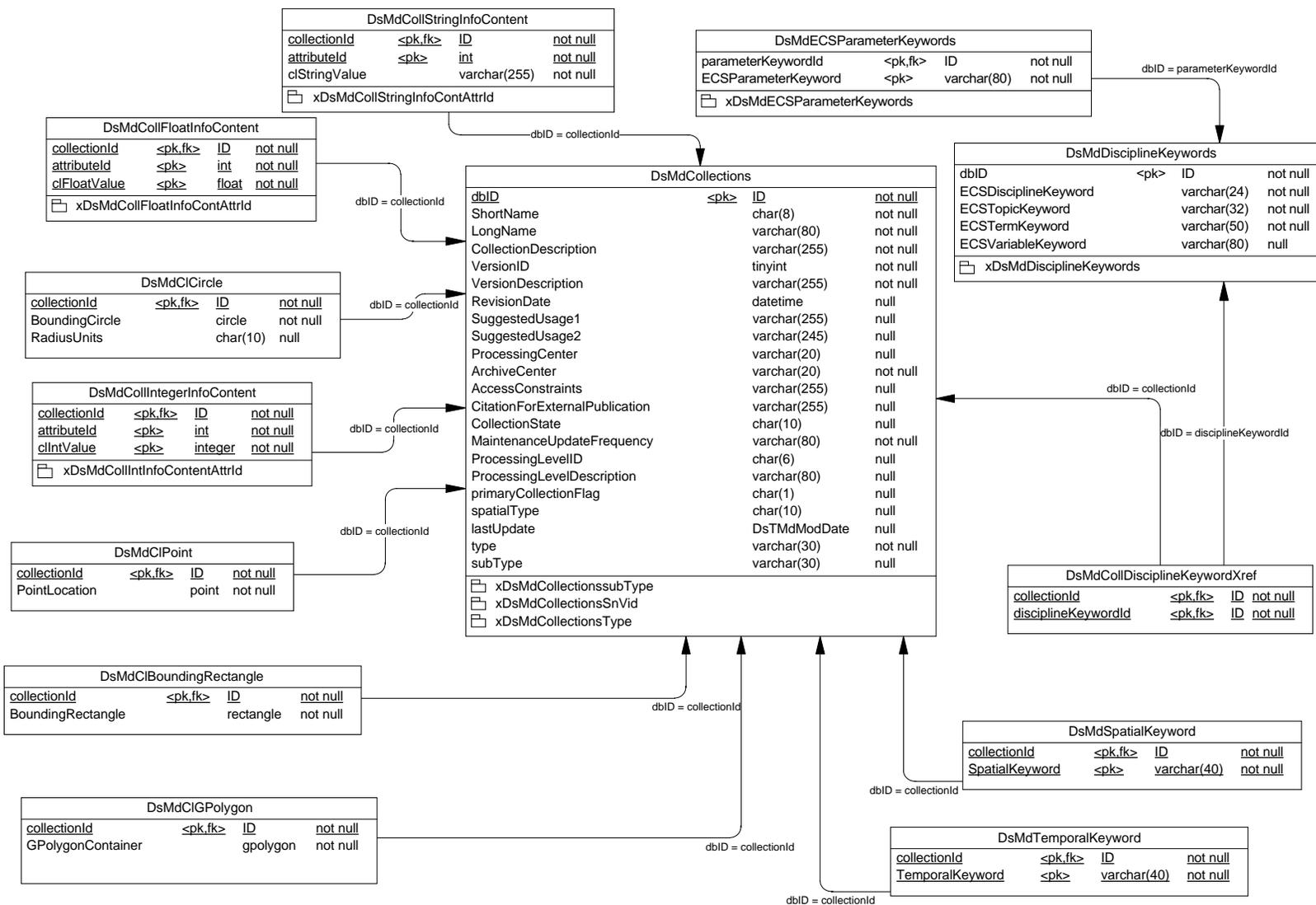


Figure A-2. Collection (1 of 2)

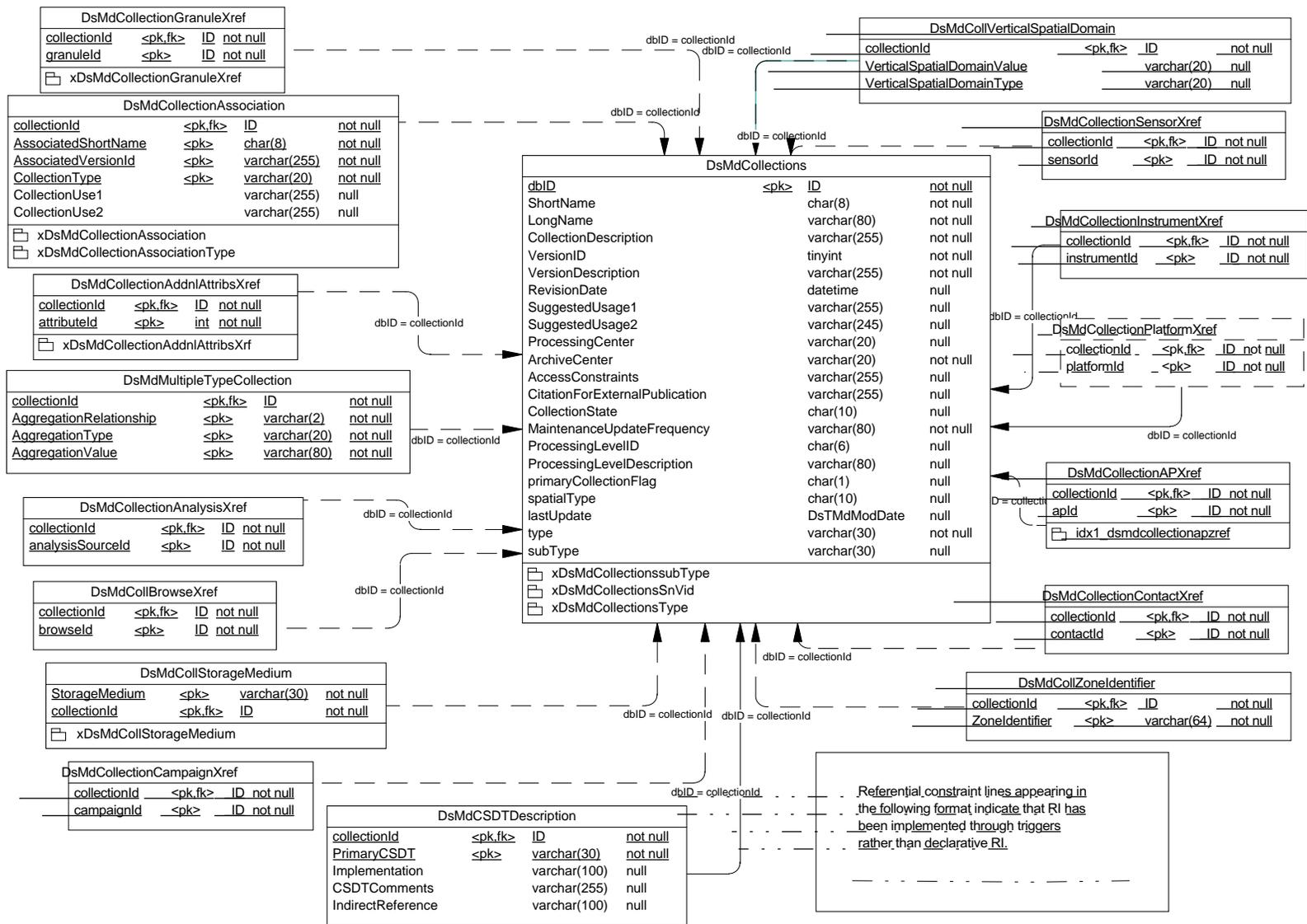


Figure A-2. Collection (2 of 2)

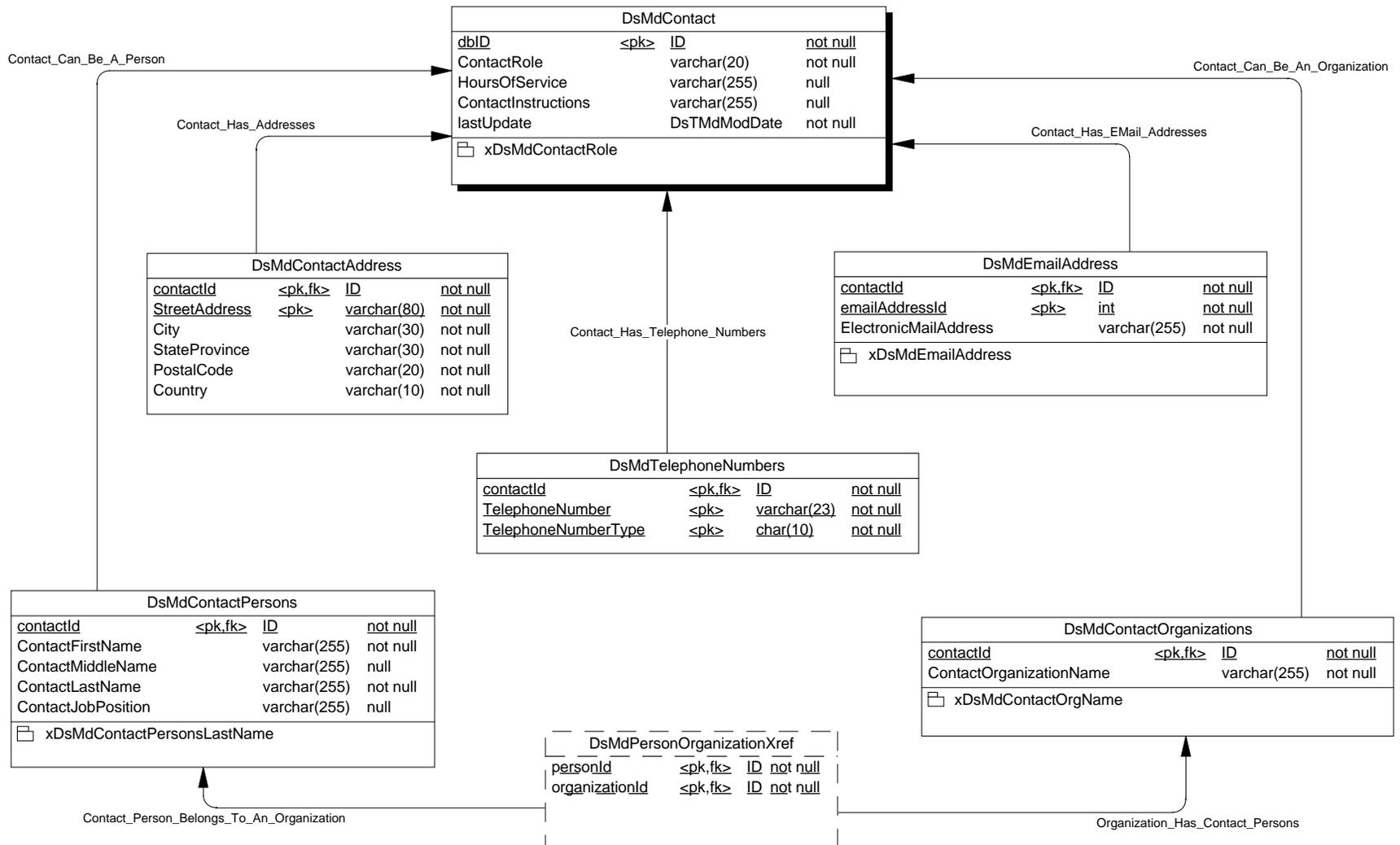


Figure A-3. Contact

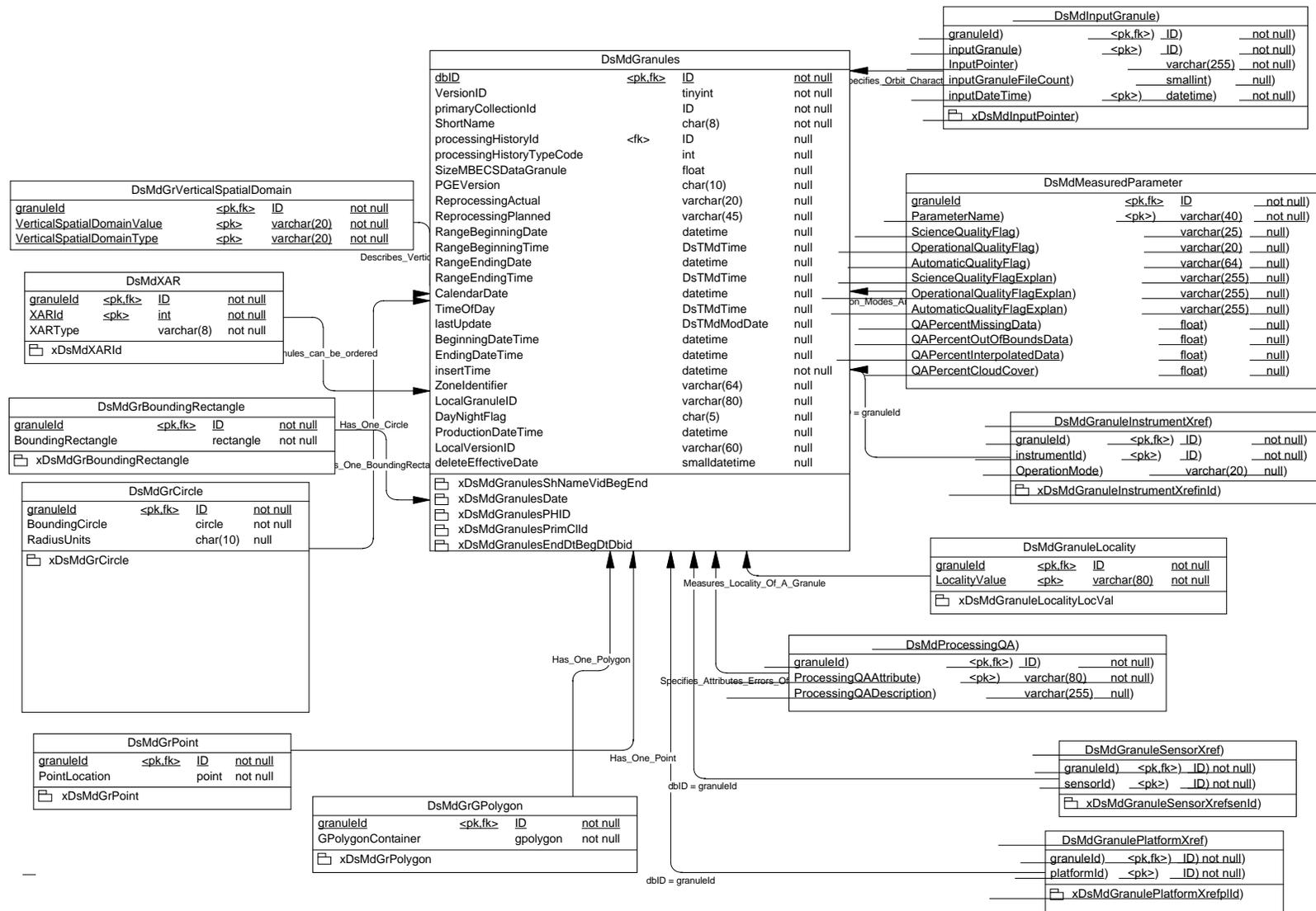


Figure A-4. Granules (1 of 4)

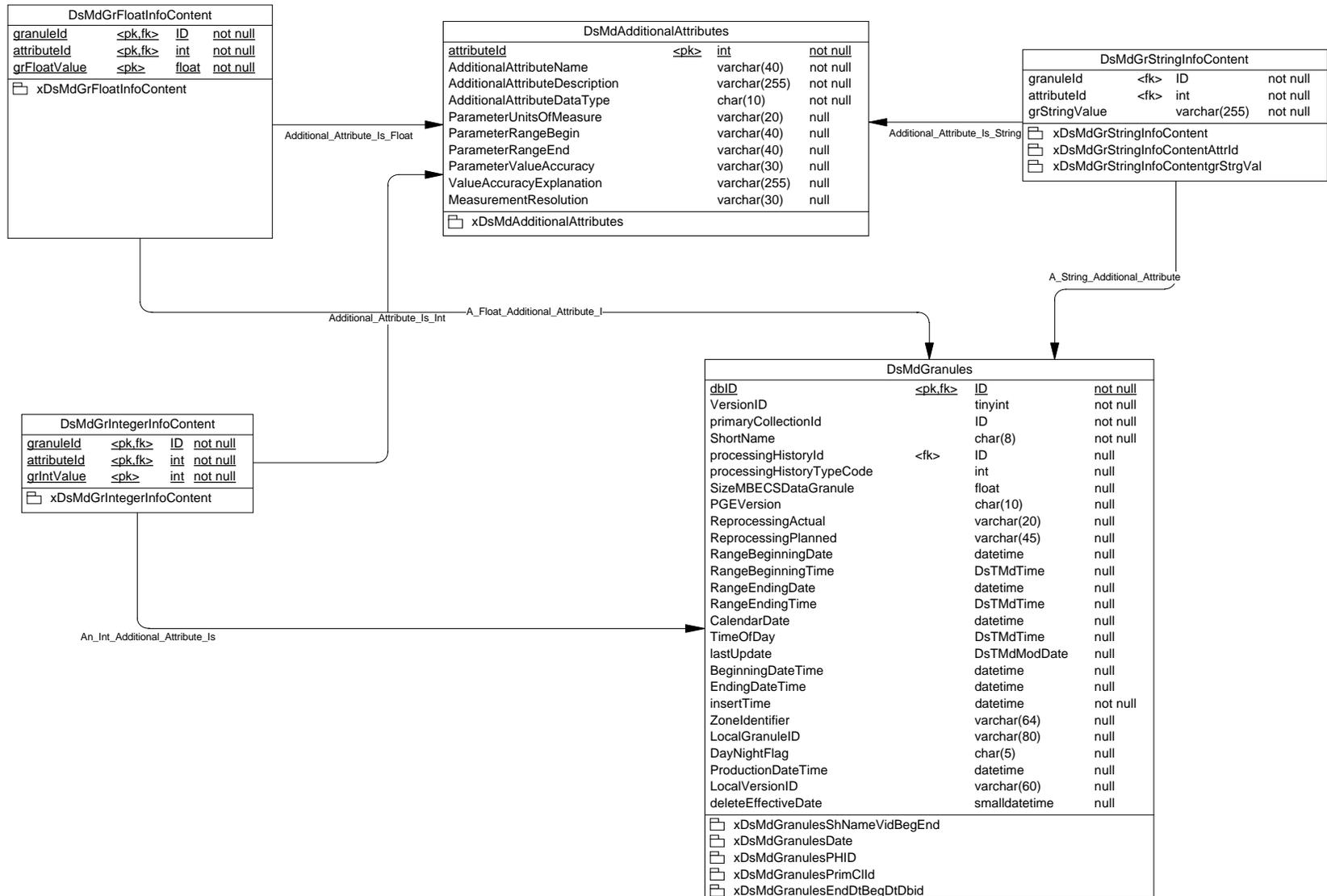
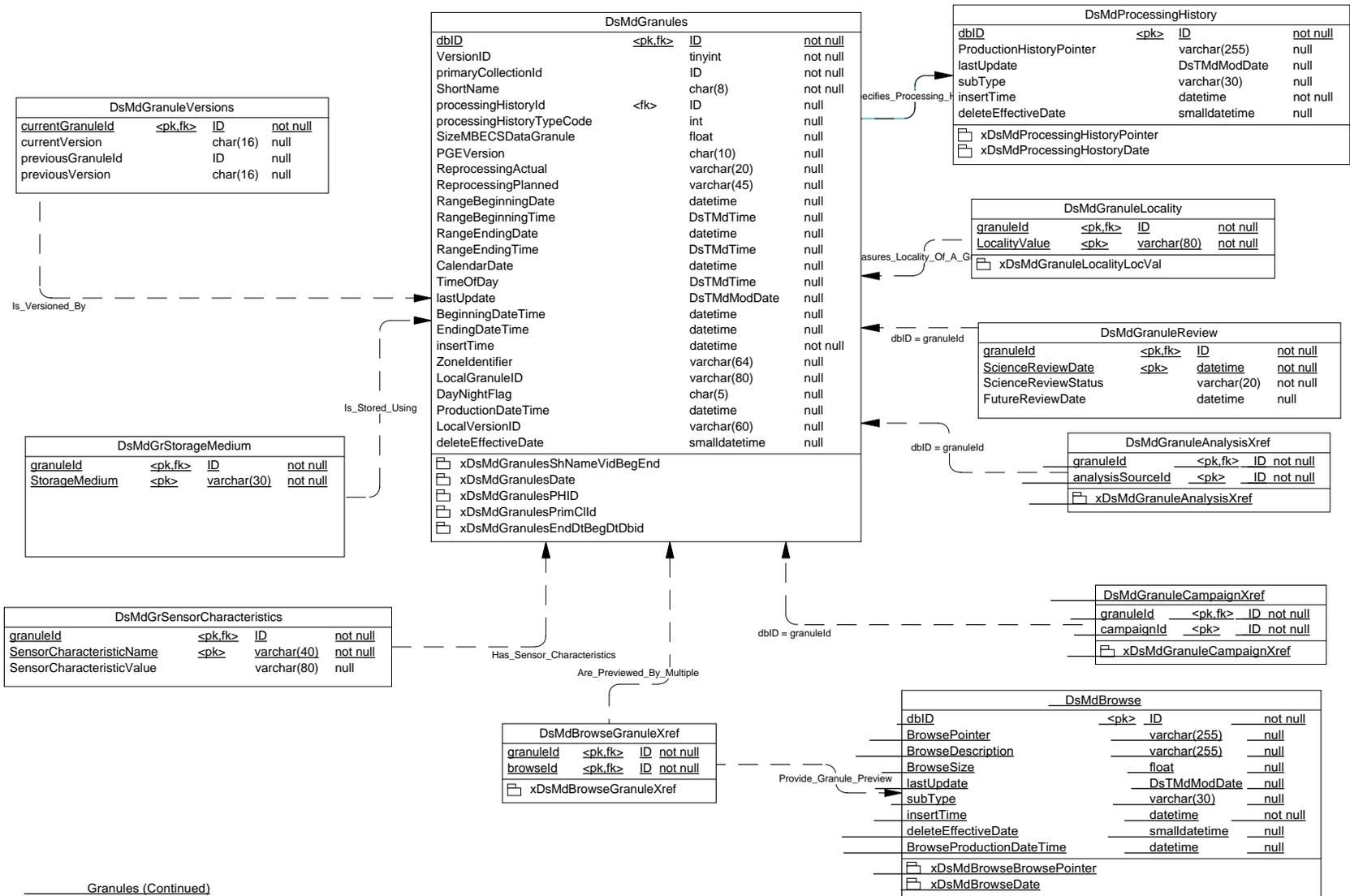
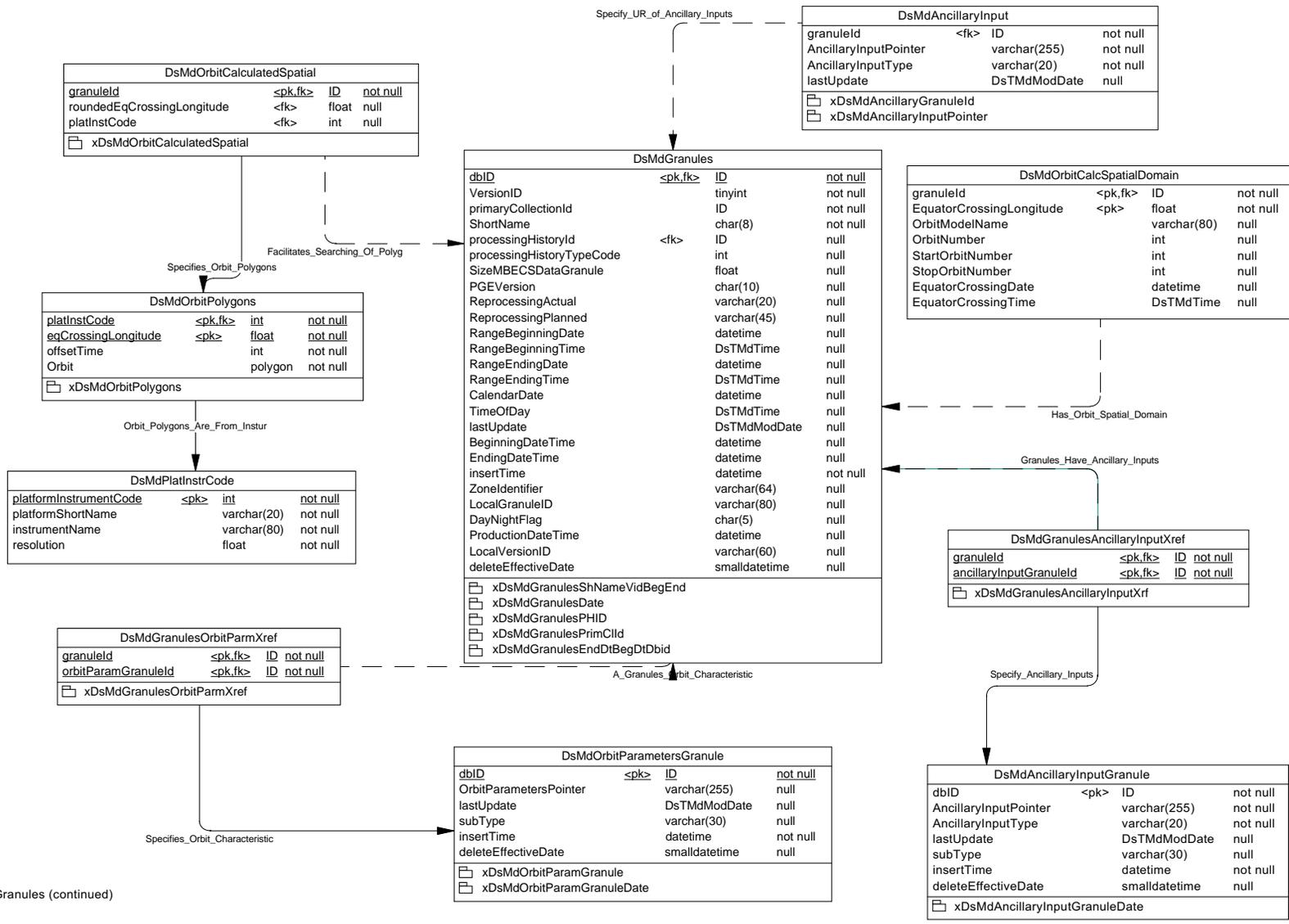


Figure A-4. Granules (2 of 4)



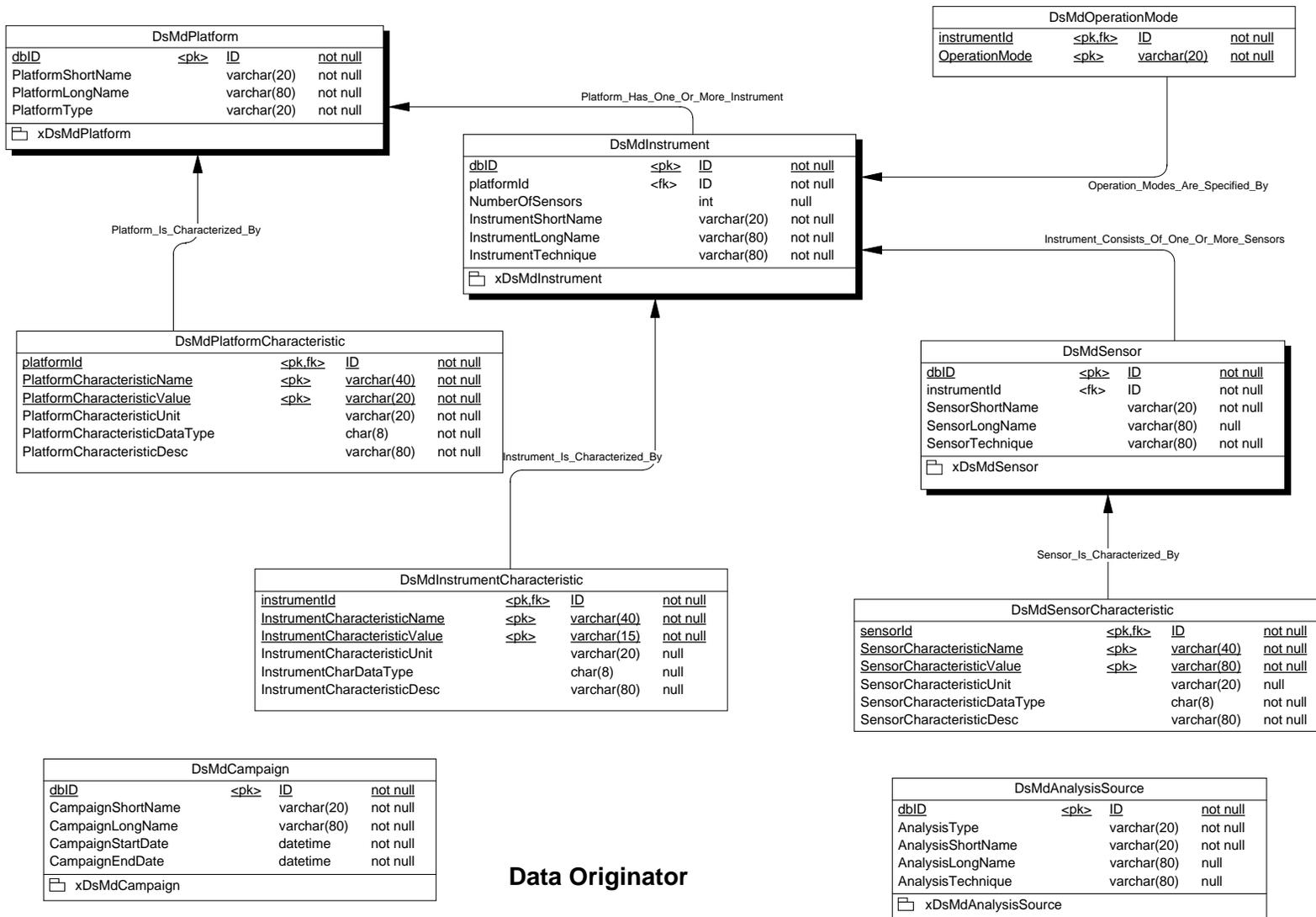
Granules (Continued)

Figure A-4. Granules (3 of 4)



Granules (continued)

Figure A-4. Granules (4 of 4)



Data Originator

Figure A-5. Data Originator

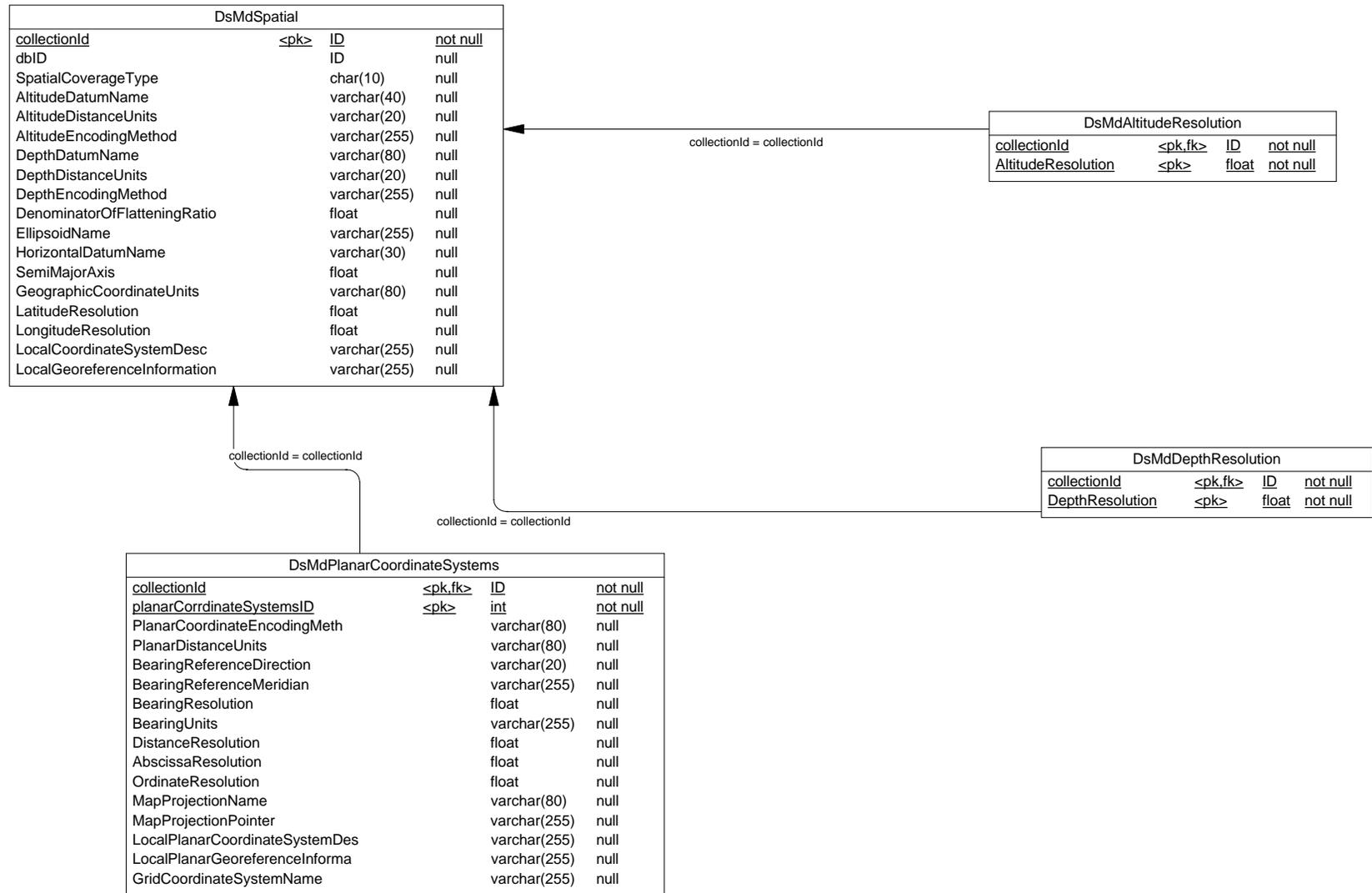


Figure A-6. Spatial

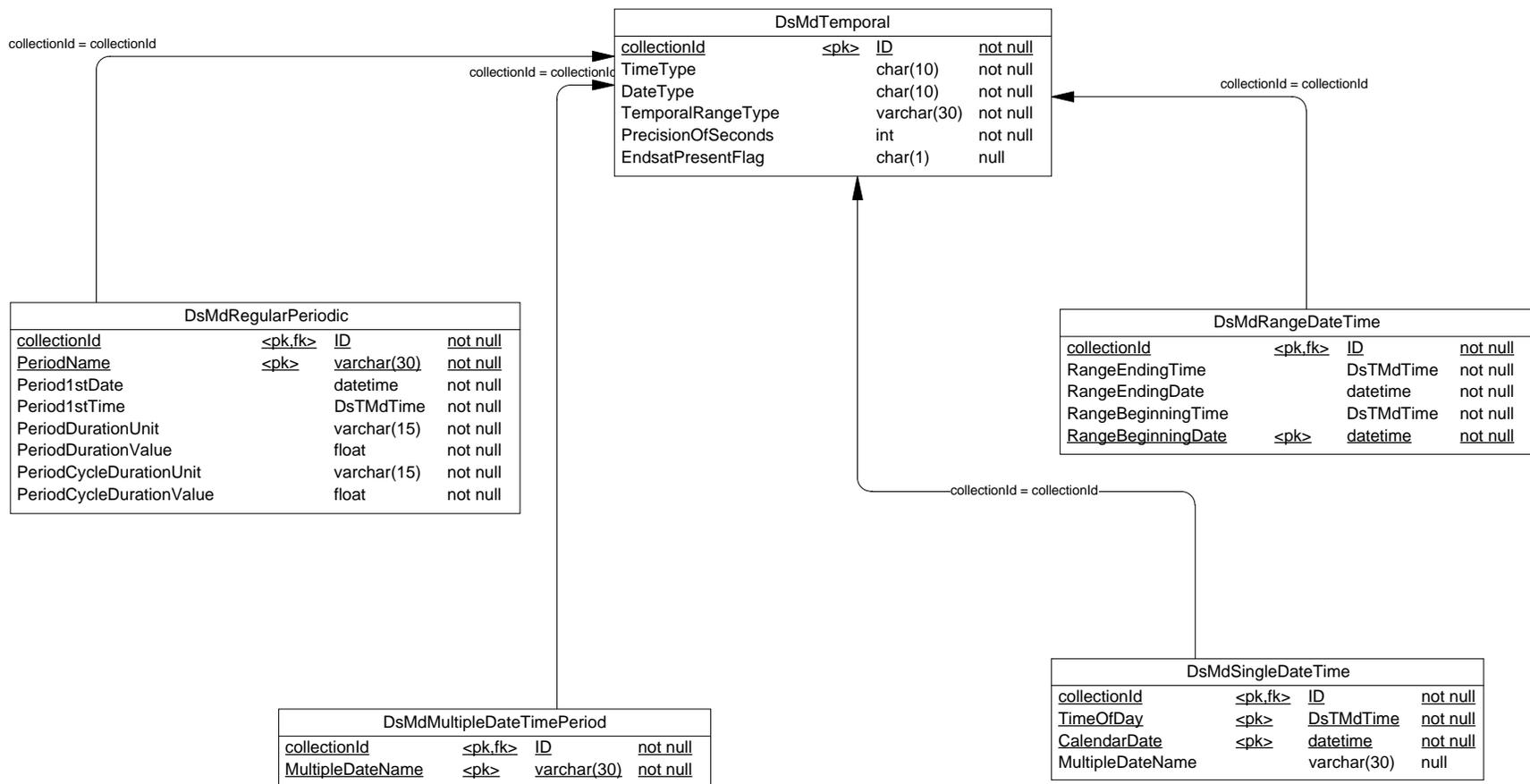


Figure A-7. Temporal

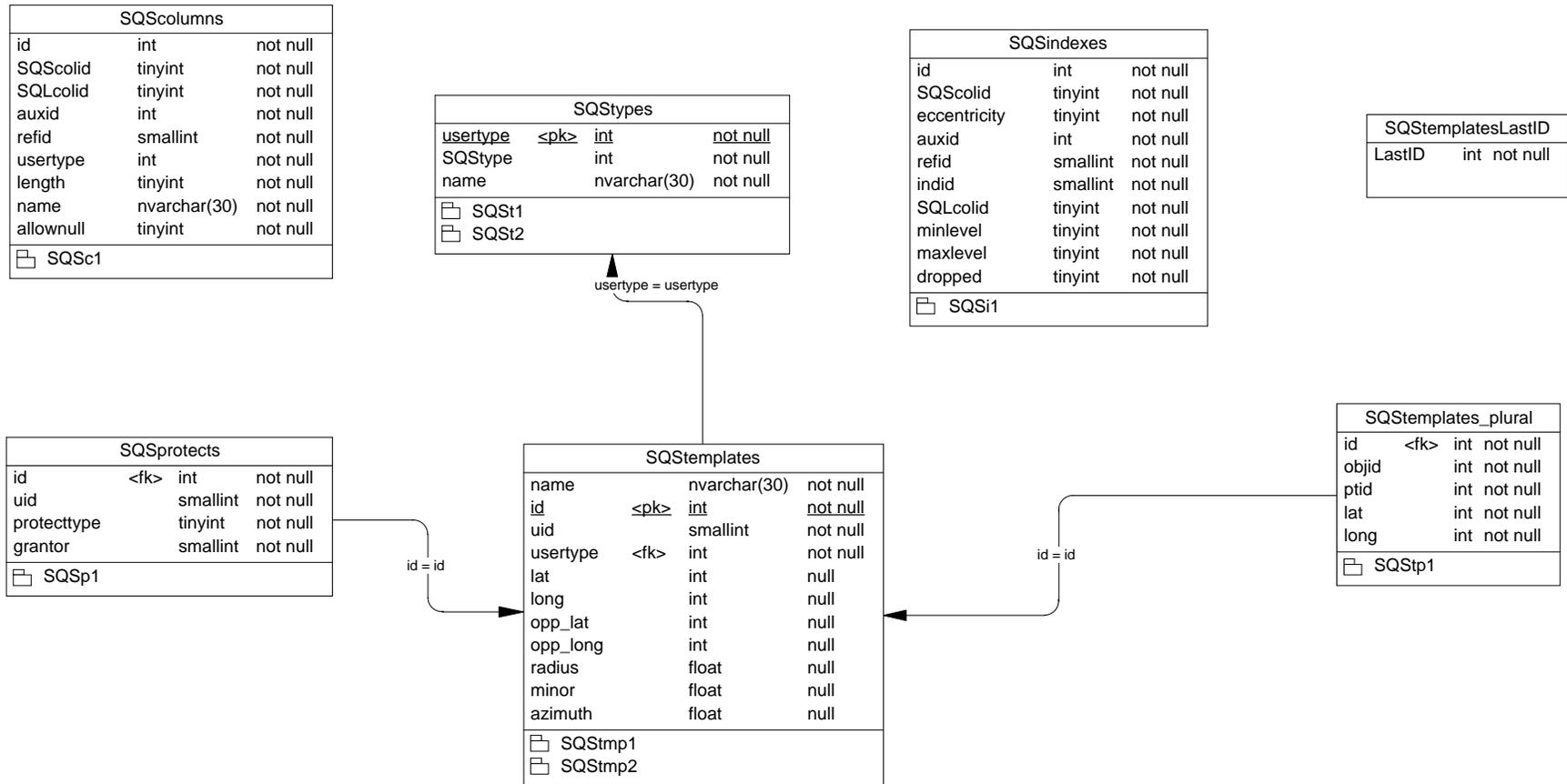


Figure A-8. SQS Data

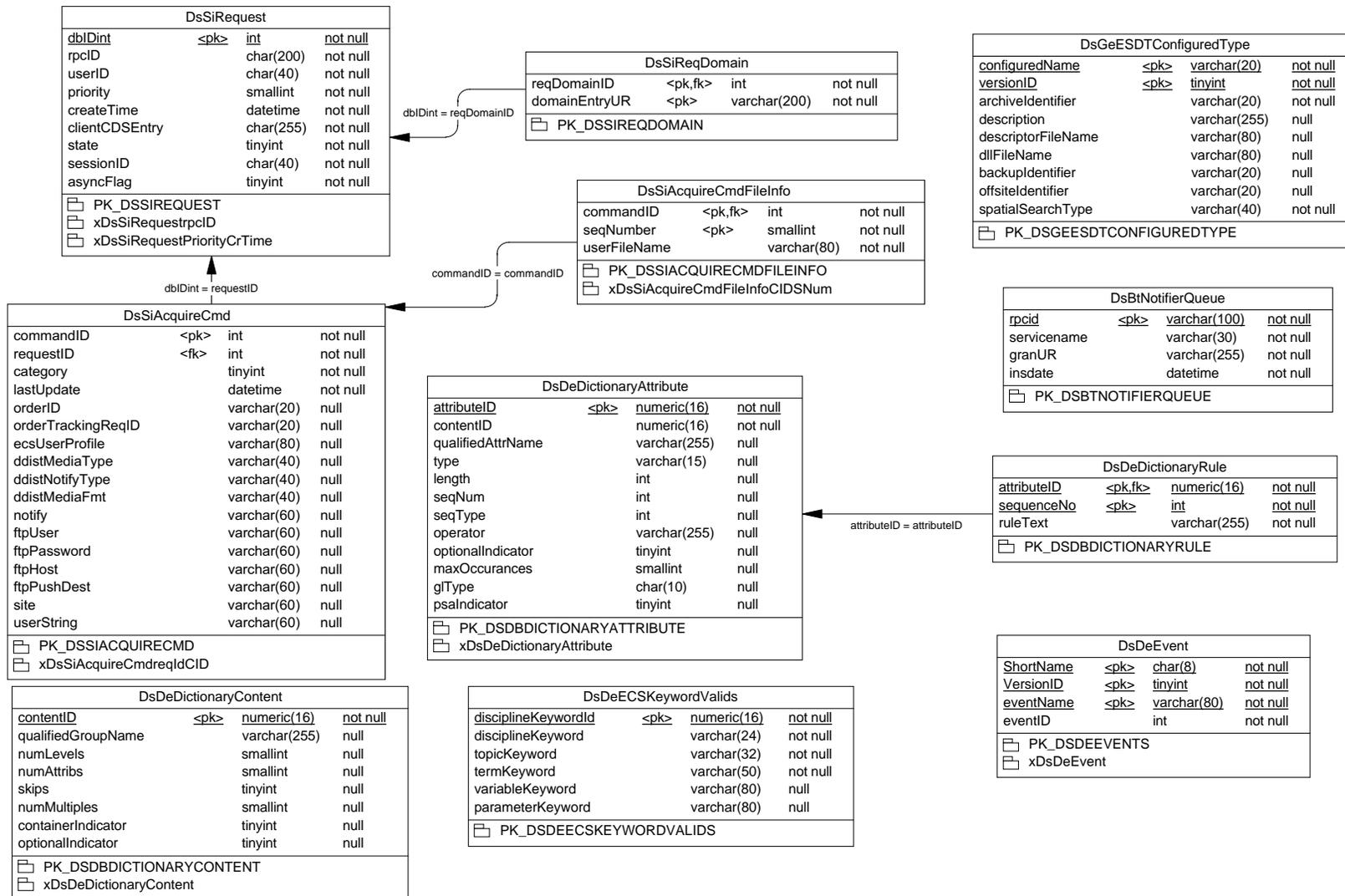


Figure A-9. System Information (1 of 2)

| DsMdAttributeConversion2 | | | |
|-------------------------------|------|-------------|----------|
| <u>GIType</u> | <pk> | varchar(40) | not null |
| <u>DynamicSQLFlag</u> | <pk> | char(1) | not null |
| DBString | | varchar(40) | not null |
| ☐ pk_dsmdattributeconversion2 | | | |

| DsMdAttributeList2 | | | |
|-------------------------|------|--------------|----------|
| <u>listName</u> | <pk> | varchar(30) | not null |
| <u>sequenceNumber</u> | <pk> | smallint | not null |
| glType | | varchar(30) | null |
| attributeName | | varchar(255) | null |
| ☐ PK_DSMDATTRIBUTELIST2 | | | |

| DsMdUnloadList2 | | | |
|----------------------|------|-------------|----------|
| <u>BaseType</u> | <pk> | varchar(40) | not null |
| <u>SubType</u> | <pk> | varchar(30) | not null |
| <u>ListName</u> | <pk> | varchar(40) | not null |
| CommandType | | char(1) | not null |
| Data Type | | char(1) | not null |
| <u>GroupName</u> | <pk> | varchar(60) | not null |
| ContainerGroupName | | varchar(60) | null |
| <u>SequenceNo</u> | <pk> | int | not null |
| ☐ pk_dsmdunloadlist2 | | | |

| DsMdJoins2 | | | |
|-----------------|------|-------------|----------|
| <u>table1</u> | <pk> | varchar(60) | not null |
| <u>column1</u> | <pk> | varchar(60) | not null |
| <u>table2</u> | <pk> | varchar(60) | not null |
| <u>column2</u> | <pk> | varchar(60) | not null |
| ☐ PK_DSMDJOINS2 | | | |

| DsMdSDSRVLookup2 | | | |
|--------------------|------|--------------|----------|
| <u>lookupType</u> | <pk> | varchar(40) | not null |
| <u>lookupValue</u> | <pk> | varchar(40) | not null |
| lookupString | | varchar(255) | null |
| lookupInt | | int | null |
| lookupFloat | | float | null |
| lookupDatetime | | datetime | null |
| ☐ PK_DSMDLOOKUP2 | | | |

| DsMdCommandConversion2 | | | |
|-----------------------------|------|--------------|----------|
| <u>Operator</u> | <pk> | varchar(40) | not null |
| <u>GroupName</u> | <pk> | varchar(40) | not null |
| <u>BaseTable</u> | <pk> | varchar(40) | not null |
| DBCommand | | varchar(255) | not null |
| <u>SequenceNo</u> | <pk> | int | not null |
| ☐ pk_dsmdcommandconversion2 | | | |

| DsMdUpdateXref2 | | | |
|----------------------|------|-------------|----------|
| <u>BaseType</u> | <pk> | varchar(40) | not null |
| <u>GroupName</u> | <pk> | varchar(40) | not null |
| DBCommand | | varchar(40) | not null |
| ListName | | varchar(40) | not null |
| CommandType | | char(1) | not null |
| <u>SequenceNo</u> | <pk> | int | not null |
| ☐ pk_dsmdupdatexref2 | | | |

| DsMdAttributeTableXref2 | | | |
|------------------------------|------|-------------|----------|
| <u>attributeName</u> | <pk> | varchar(80) | not null |
| <u>productName</u> | <pk> | varchar(80) | not null |
| tableName | | varchar(32) | null |
| columnName | | varchar(32) | null |
| ☐ PK_DSMDATTRIBUTETABLEXREF2 | | | |

Figure A-9. System Information (2 of 2)

Abbreviations and Acronyms

| | |
|--------|--|
| ANSI | American National Standards Institute |
| ASCII | American Standard Code for Information Exchange |
| CASE | Computer Aided Software Engineering |
| CD | contractual delivery 213-001 |
| CDRL | contract data requirements list |
| CI | configuration item |
| COTS | commercial off-the-shelf (hardware or software) |
| CSCI | computer software configuration item |
| DAAC | Distributed Active Archive Center |
| DBCC | Database Consistency Checker |
| DBMS | Database Management System |
| DCN | Document Change Notice |
| DID | data item description |
| DMS | Data Management Subsystem |
| ECS | EOSDIS Core System |
| EDC | EROS Data Center |
| EDHS | ECS Data Handling System |
| EOSDIS | Earth Observing System Data and Information System |
| EROS | Earth Resources Observation System |
| ERD | Entity Relationship Diagram |
| ESDIS | Earth Science Data and Information System (GSFC) |
| ESDT | Earth science data types |
| ESN | EOSDIS Science Network (ECS) |
| FK | Foreign Key |
| GSFC | Goddard Space Flight Center |
| GUI | graphic user interface |
| HDF | hierarchical data format |

| | |
|---------|--|
| HDF-EOS | an EOS proposed standard for a specialized HDF data format |
| HTML | HyperText Markup Language |
| HTTP | Hypertext Transport Protocol |
| I/O | input/output |
| ICD | interface control document |
| INGST | Ingest Services CSCI |
| IOS | Interoperability Subsystem |
| LaRC | Langley Research Center (DAAC) |
| MSS | Management Support Subsystem |
| N/A | not applicable |
| NAS | National Academy of Science |
| NASA | National Aeronautics and Space Administration |
| NSIDC | National Snow and Ice Data Center (DAAC) |
| ODL | Object Definition Language |
| PCF | Process Control File |
| PDF | Portable Document Format |
| PDPS | Planning and Data Processing Subsystem |
| PGE | Product Generation Executive |
| PK | Primary Key |
| QA | Quality Assurance |
| SDSRV | Science Data Server CSCI |
| SQL | Structured Query Language |
| STMGT | Storage Management Software CSCI |
| SUBSRV | Subscription Server |
| WWW | World-Wide Web |